Saskatchewan Learning

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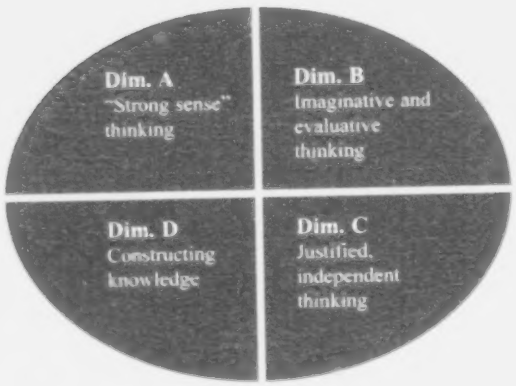
2002 PROVINCIAL LEARNING ASSESSMENT IN CRITICAL AND CREATIVE THINKING

Opportunities

Dimensions of Critical and Creative Thinking



Outcomes

MAY 2003

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EXECUTIVE SUMMARY

In the spring of 2002, about 2000 Grade 5, 8 and 11 Saskatchewan students from 101 randomly selected schools participated in the 2002 Provincial Learning Assessment in Critical and Creative Thinking. This was the first large-scale critical and creative thinking assessment undertaken in Saskatchewan.

Students completed open-response/performance-type questions from the four dimensions of critical and creative thinking as outlined in the 1992 Saskatchewan Learning document *Objectives for the Common Essential Learnings*. Questions had to meet four criteria: be suitable for a large-scale assessment, be curriculum appropriate, be motivating, and reflect authentic situations.

A standard-setting panel representing various education partners set provincial standards and expectations for students' performance outcomes and opportunity-to-learn results related to critical and creative thinking.

Performance Outcomes

Students could attain one of five levels of achievement. *Level 1* represented lowest achievement, *Level 3* adequate achievement and *Level 5* excellent achievement.

- In the area of **'strong sense' thinking** (Dimension A), just over one-half of Grade 5 and Grade 8 students and two-thirds of Grade 11 students performed at Level 3 (adequate) or better. Grade 11 results met provincial expectations for Level 3 or better but did not meet expectations at the higher levels. Grade 5 and Grade 8 results fell short of expectations at Levels 3, 4 and 5.

- About three-quarters of Grade 5 students, two-thirds of Grade 8 students and just less than one-half of Grade 11 students demonstrated adequate or better **imaginative and evaluative thinking** (Dimension B). Grade 5 performance results exceeded provincial expectations at Levels 3, 4 and 5. Grade 8 and 11 results fell short of expectations at these three levels.

- Adequate or better performance of **justified, independent thinking** (Dimension C) was demonstrated by 63% of Grade 5 students, 67% of Grade 8 students and 50% of Grade 11 students. Grade 5 and 8 results met provincial expectations; Grade 11 results did not.

Dimensions of Critical and Creative Thinking

- Two-thirds of Grade 5 and 8 students and just less than one-half of Grade 11 students met the criteria for Level 3 or higher in **constructing knowledge** (Dimension D). Grade 8 results met provincial expectations for Levels 3, 4 and 5. Grades 5 and 11 students did not meet expectations at these levels.

Opportunities to think Critically and Creatively

A standard-setting panel representing various educational partners set provincial standards and expectations for one opportunity-to-learn element. That element was metacognitive skills and practices from the student-related dimension of opportunity-to-learn. Standards and expectations were set at a sufficient level and an excellent level. The results show:

- About three-quarters of Grade 5 students are meeting the sufficient standard and one-quarter are meeting the excellent standard for metacognitive skills and practices. These are slightly above panelists' expectations.

- Fewer Grade 8 students are meeting the sufficient and excellent standards set by the panelists. About one-half the Grade 8 students are meeting the sufficient level and one-tenth are meeting the excellent level. Expectations of panelists were considerably higher for the sufficient level and slightly higher for the excellent level.

- Grade 11 students are approaching panelists' expectations at the sufficient level and meeting expectations at the excellent level for metacognitive skills and practices. Just over two-thirds of Grade 11 students are meeting the sufficient standard and one-fifth are meeting the excellent level.

Other findings about students' attitudes and achievement include:

- Students in all three grades whose metacognitive skills and practices were judged from questionnaire data to be in the adequate to excellent range performed significantly higher on the assessment than those students who were judged to be in the lower ranges.
- For the three grades, in almost all dimensions of critical and creative thinking, females performed significantly higher than males. There were no statistically significant differences between females and males in Grade 5 for constructing knowledge (Dimension D) and in Grade 11 for imaginative and evaluative thinking (Dimension B).

I. INTRODUCTION

Improving the quality of student thinking is an explicit priority of Saskatchewan's K-12 curriculum. Students, like adults, are confronted with vast amounts of information. They need to sort through, analyze, synthesize and evaluate that information to make meaning of it in their lives. They need to be innovative in their problem-solving and decision-making. How strong are these skills and abilities? Are we meeting the expectations for education in our society? Although some assessments touch on critical and creative thinking skills, having an assessment that cuts across a range of curricula is a more integrative approach.

During March and April 2002, about 2,000 Grades 5, 8 and 11 Saskatchewan students completed questionnaires and assessment tasks that provided a snapshot of their skills, knowledge, attitudes and practices related to critical and creative thinking. This report summarizes the findings.

Objectives of the Assessment

The objectives of the critical and creative thinking assessment were to:

- collect information about the home and school environment contributing to students' opportunities to become critical and creative thinkers;
- assess student achievement levels in the four dimensions of critical and creative thinking;
- report to the people of Saskatchewan on students' skills, knowledge, attitudes and practices in critical and creative thinking; and,
- gather data that may be useful in making program improvements.

Provincial learning assessments in the Areas of Study and the Common Essential Learnings are one source of information for the Saskatchewan Education Indicators Program. The Indicators Program draws data from many areas to create a broad picture of Saskatchewan's K to 12 education system. Some of these sources are indicated in Figure 1.

Figure 1: Sources of Information for the Saskatchewan Education Indicators Program

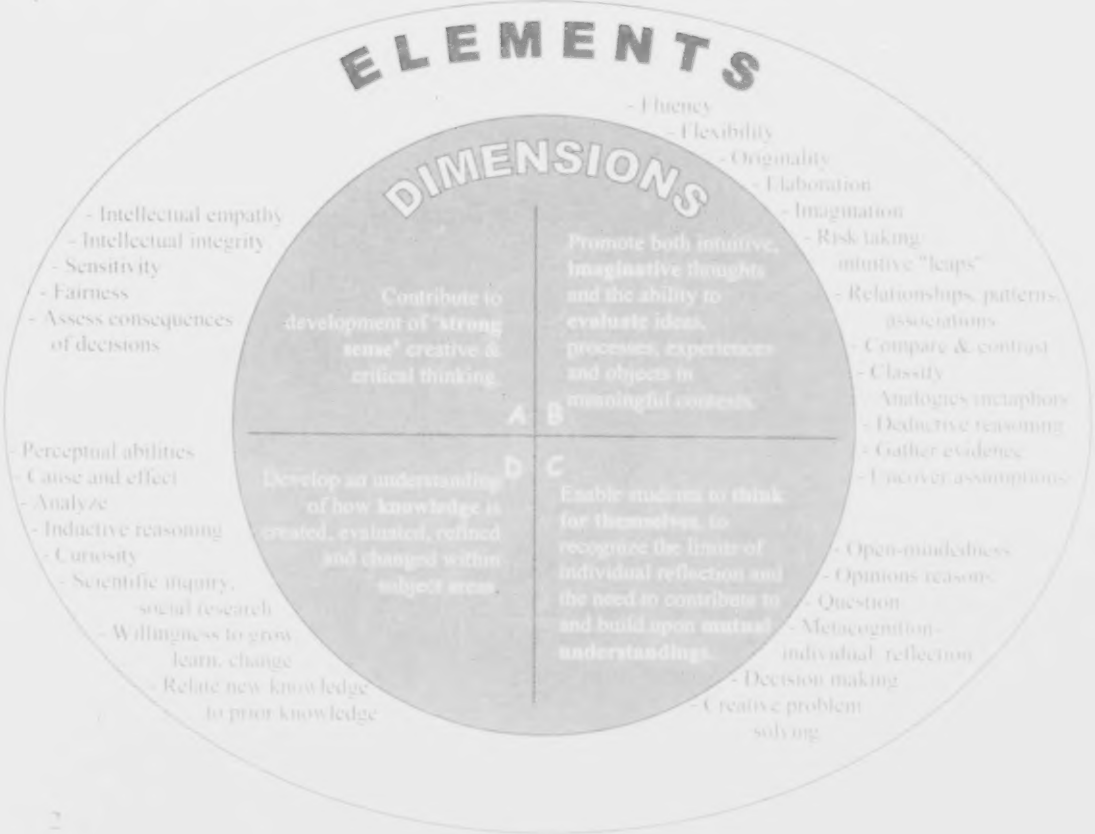
Saskatchewan Education Indicators Program
School Achievement Indicators Program (SAIP) Council of Ministers of Education, Canada
Provincial Curriculum Evaluation Program
Provincial Learning Assessment Program
Statistics Canada Data
Pan-Canadian Indicators Program
Saskatchewan Education Internal Data Sources: School Grants, Teacher Services, Student Services, Provincial Examinations, Other Branches & Units
Other Data Sources
International Assessments and Surveys

Framework of the Critical and Creative Thinking Assessment

Creative thinking is generally considered to involve the creation or generation of ideas, processes or experiences; critical thinking is concerned with their evaluation. Critical and creative thinking are interrelated and complementary aspects of thinking. Almost all thinking we undertake contains some critical and some creative aspects. For example, when we try to solve real life problems, we move back and forth several times between creative and critical reflections as we develop solutions or weigh the consequences of a solution.

Four dimensions of critical and creative thinking formed the framework for this assessment. Within each dimension, various elements that represented that particular dimension were the focus for the assessment items. Dimension A focused on "strong sense' thinking or thinking that involves intellectual empathy and integrity. Dimension B considered fluency and flexibility in thinking as well as the ability to evaluate choices. In Dimension C, students were to form opinions and justify or support these. They also engaged in decision-making and problem-solving. The focus for Dimension D was on students' ability to construct knowledge from existing knowledge. They engaged in scientific inquiry, and utilized perceptual abilities. Figure 2 outlines the framework that was used for this assessment.

Figure 2: Framework of the Critical and Creative Thinking Assessment


ELEMENTS
DIMENSIONS
- Fluency
- Flexibility
- Originality
- Elaboration
- Imagination
- Risk taking: intuitive "leaps"
- Relationships, patterns, associations
- Compare & contrast
- Classify
- Analogies/metaphors
- Deductive reasoning
- Gather evidence
- Uncover assumptions
- Open-mindedness
- Opinions reasons
- Question
- Metacognition - individual reflection
- Decision making
- Creative problem solving
- Intellectual empathy
- Intellectual integrity
- Sensitivity
- Fairness
- Assess consequences of decisions
- Perceptual abilities
- Cause and effect
- Analyze
- Inductive reasoning
- Curiosity
- Scientific inquiry, social research
- Willingness to grow, learn, change
- Relate new knowledge to prior knowledge
Contribute to development of 'strong sense' creative & critical thinking
A
Promote both intuitive, imaginative thoughts and the ability to evaluate ideas, processes, experiences and objects in meaningful contexts
B
Develop an understanding of how knowledge is created, evaluated, refined and changed within subject areas
D
Enable students to think for themselves, to recognize the limits of individual reflection and the need to contribute to and build upon mutual understandings
C

Format of the Assessment

In each of the three grades, all students completed a two-part assessment consisting of open-response and performance-type questions from the four dimensions of critical and creative thinking. The two-hour assessment was completed over two days.

Part One began with a problem-solving question that required working with an assigned partner. The remaining assessment items were to be completed independently. On another day, students completed Part Two of the assessment. Students had multiple opportunities to demonstrate knowledge/skill sets within a particular dimension. Separate scores were given for each question and overall scores were assigned for each dimension.

A school-designated coordinator administered the assessment between March 15 and April 12, 2002. Students completed a questionnaire about their attitudes towards, and practices in, critical and creative thinking. Teachers responded to a similar questionnaire on their beliefs, practices and perceptions related to critical and creative thinking.

- A group of Saskatchewan teachers developed test items for the assessment in the spring of 2001. They followed specifications set by a project team of education stakeholders and specialists.
- In fall and winter 2001, items were field-tested in numerous urban, rural and northern schools in Saskatchewan. Questions were then refined or replaced, and administrative procedures were modified, based on teacher and student feedback.

Student Participation

Classrooms from 101 schools in urban, rural and northern Saskatchewan were selected. Students had the opportunity to respond in areas of their strength. Grade 5 students chose between an English Language Arts/Arts Education combination or a Mathematics/Science combination. Grade 8 students had an additional combination of Social Studies/Health and Grade 11 students had the Social Sciences combination.

Students enrolled in regular English Language Arts classes participated in the assessment. Almost all Saskatchewan students study English Language Arts, and therefore, it was believed that these students would represent best the overall profile of Saskatchewan students' skills in critical and creative thinking.

Students in modified programs, where foundational objectives of the course had been altered, did not participate.

Grade 5 Participants

- 390 ELA/ArtsEd
- 316 Math/Science

Grade 8 Participants

- 292 ELA/ArtsEd
- 198 Math/Science
- 124 Social Studies/Health

Grade 11 Participants

- 220 ELA/ArtsEd
- 218 Math/Science
- 120 Social Sciences

In other words, students in special resource room programs, locally-developed programs, or International Baccalaureate (I.B.) programs were not assessed. Regular program students requiring adaptations such as large-print forms, readers and scribes did participate.

Motivation to Do Well

Students were asked to try their best to show how Saskatchewan students think critically and creatively. Students' choice to do so depended on intrinsic motivation and personal satisfaction. Their work and effort on this assessment did not affect their school marks.

Results were reported at the provincial level only. Individual students, classrooms, schools or school divisions were not identified.

Standard and Expectation Setting

A panel for each grade, consisting of parents, students, teachers, directors, curriculum writers, university academics, business people and trustees set standards and expectations related to:

- student achievement outcomes; and,
- student opportunities to learn.

The panelists:

- became aware of the administrative processes for the assessment;
- attempted some of the test items and tasks;
- viewed examples of student work at various achievement levels;
- discussed students' opportunities and how well students should achieve; and,
- reviewed factors affecting students' opportunities to think critically and creatively.

The standards and expectations set by the panelists provide comparators for the findings of the assessment. This report presents student questionnaire and achievement information alongside the panelists' standards and expectations.

Each grade panel consisted of representatives from:

5 Saskatchewan Teachers Federation
1 Saskatchewan School Trustees Association
1 League of Educational Administrators, Directors and Superintendents
1 Saskatchewan Association of School Councils (parent)
1 Student
1 Saskatchewan Chamber of Commerce
1 Saskatchewan Learning
1 Universities
1 Saskatchewan Indian Federated College

Limitations of the Assessment

The assessment design attempted to accommodate a wide and balanced view of critical and creative thinking. In the two-hour test, only a sample of aspects of critical and creative thinking could be tested. Consequently, some students may not have had the opportunity to demonstrate their full range of skills and knowledge in critical and creative thinking.

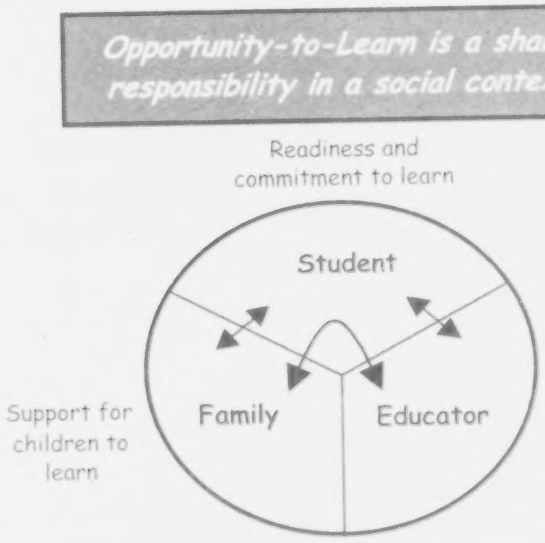
Opportunities to Learn Related to Critical and Creative Thinking

What is Opportunity-to-Learn (OTL)?

Student achievement outcomes are influenced not only by differences in student ability, but also by differences in student experiences. The classroom and school, the home and community, and the students themselves all influence the type, quality and extent of learning. Providing students with the opportunity to become critical and creative thinkers is a shared responsibility.

Opportunity-to-Learn refers to the conditions that facilitate learning.

Outcomes describe the product or results of learning such as the skill levels demonstrated by students.


Opportunity-to-Learn is a shared responsibility in a social context
Readiness and commitment to learn
Student
Family
Educator
Support for children to learn
Classroom activities and resources for effective learning

For provincial learning assessments, information is usually collected on classroom-related, readiness-related, and support-related dimensions of OTL. However, for this assessment, standards and expectations were set on only one element of the readiness-related dimension: metacognitive skills and practices. Standard-setting panels for each grade reviewed a 5-level rubric describing this element of OTL. A standard was set by panelists to describe sufficient or adequate opportunity-to-learn as well as excellent opportunity-to-learn. The average of the panelists' votes became the standard. A standard of 3.6, for example, represents the average of the panelists' votes. It indicates that Level 3 criteria and some Level 4 criteria would represent the standard.

After setting the standard, panelists considered the range of student needs and characteristics, the different learning styles and the different learning

environments throughout the province. Based on this consideration they set a percentage expectation as to what percentage of students at each grade level should have sufficient and excellent opportunity-to-learn consistent with the standard derived. The median of percentage expectations for each grade is presented in the table of this section, in the row beneath the standards.

The median is the value of the middle element of a set of responses. For example, if the median was 72%, half of the panelists responding reported 72% or lower, and half reported 72% or higher.

Readiness-Related Opportunities-to-Learn

Student Metacognitive Skills and Practices

Students' opportunities to learn are shaped by many factors within the students' control such as persistence and reflection. The standard-setting panel for each grade considered one student-related opportunity-to-learn element: metacognitive skills and practices. Metacognition is the awareness and control of one's own thinking. One may plan, monitor progress or evaluate metacognitively. These processes provide the basis for self-reflection. A 5-level rubric found in Figure 3 describes various aspects of metacognition. Student questionnaire responses served as indicators to judge students' metacognitive level. Using a frequency scale (almost always, usually, sometimes and hardly ever), some of the questionnaire items that informed metacognitive levels included:

- *I set high goals for myself and work toward these.*
- *I come prepared for my classes.*
- *I take time to review errors in tests and marked work so that I will do better next time.*
- *I try hard to show my best work.*
- *When I study, I start by figuring out exactly what I need to learn.*

Five aspects of metacognition considered were:

- Goal-setting
- Reflection
- On-task
- Persistence
- Preparedness

Figure 3 provides characteristics of the five levels of metacognition used in the assessment, along with the percentage of students' responses at each level and the standards and expectations set by the panelists. Level 5 metacognitive thinkers consistently set daily goals and thrive on the challenge of solving problems independently. Level 3 metacognitive thinkers occasionally set goals and complete their work to the best of their ability. A sufficient standard is what is expected of an average student at a particular grade; an excellent standard is what is expected of our most capable students.

Figure 3: Student Metacognitive Skills and Practices, Percentage of Grade 5, 8, and 11 Students by Level

Characteristics of Metacognitive Skills and Practices	Percentage of Student Responses		
	Grade 5	Grade 8	Grade 11
***Level 5 (high)**: Sets realistic, daily goals; monitors performance regularly; consistently on-task and influences others to remain focused; thrives on solving problems independently; reviews pre-unit work*	*7%*	*3%*	*3%*
***Level 4:** Sets realistic, long-term targets; monitors performance weekly; remains focused and attentive; likes to solve problems independently and only asks for a hint after much effort; reviews previous work*	*10%*	*6%*	*5%*
***Level 3:** Periodically sets long-term goals; reflects on day's activity when something goes wrong; usually on-task and returns to task through self-monitoring; completes most assignments consistent with capability*	*45%*	*46%*	*45%*
***Level 2:** Sets long-term goals when asked to do so; reflects on class material when a test is coming; usually participates but requires direction to return to task; completes short or interesting assignments; sometimes unprepared*	*33%*	*39%*	*41%*
***Level 1: (low)** Reluctantly sets goals that tend to be superficial; assumes little responsibility for learning; seldom engages in class activities; irregularly completes assignments; often unprepared*	*4%*	*7%*	*7%*
Sufficient Standard Level	***2.7***	***3.0***	***2.6***
% of students expected to meet the standard	***70%***	***70%***	***75%***
% of students meeting the standard	***72%***	***54%***	***69%***
Excellent Standard Level	***3.8***	***4.0***	***3.7***
% of students expected to meet the standard	***20%***	***10%***	***21%***
% of students meeting the standard	***27%***	***8%***	***20%***
Note: Number of Participating Students	*706*	*614*	*558*

A summary of the findings in Figure 3 includes the following:

- Generally, most panelists thought the characteristics described by Level 3 represented sufficient opportunity-to-learn. Some panelists at Grade 5 and Grade 11 indicated that not all characteristics described by Level 3 needed to be present, hence the standards for sufficient opportunity of 2.7 and 2.6 respectively.
- Grade 8 panelists thought the characteristics described by Level 4 represented the excellent standard, while Grade 5 and Grade 11 panelists thought that not all characteristics were necessary.
- About three-quarters of Grade 5 students are meeting the sufficient standard and one-quarter are meeting the excellent standard, consistent with panelists' expectations.
- Fewer Grade 8 and 11 students than expected are meeting the sufficient standard. About one-half of Grade 8 students and just over two-thirds of Grade 11 students are meeting the sufficient level.
- In terms of their metacognitive skills and practices, the expected numbers of Grade 8 and Grade 11 students are meeting the excellent standard level.

Although students have key roles and responsibilities in determining their metacognitive skills and practices, educators and families also have important roles to play in nurturing the development of these skills and practices. For many students, setting goals, maintaining discipline, persisting to do their best work and reflecting on what they might do to improve their learning are not natural, automatic practices. Teachers engage students in active learning guided by quality curricula, and can utilize a variety of instructional strategies and practices to purposefully enhance metacognition. Figure 4 outlines some of the questions from the teacher questionnaire that provided data on aspects of metacognitive practices such as reflection, persistence and goal-setting. The percentage of teachers who responded with a frequency of 'most days' or 'about once a week' is also shown.

This is not an exhaustive list of metacognitive skills and practices but serves as an indication of the frequency with which students are challenged to think about what they are learning and how they might improve.

Figure 4: Teacher Responses to Classroom Opportunities to Practice Metacognitive Skills

Students in my class have the opportunity to do the following most days:	**Grade 5**	**Grade 8**	**Grade 11**
Reflect on their thinking – what was good, what needs improving	33% (79%)*	16% (77%)	19% (71%)
Monitor themselves when executing a plan	15% (48%)	10% (23%)	6% (35%)
Focus on gaps in knowledge – what is known and what is unknown	15% (70%)	23% (57%)	19% (68%)
Evaluate themselves upon completion of a task	15% (39%)	3% (26%)	6% (32%)
Understand that the process of thinking and the work shown is more important than the final result	55% (82%)	60% (90%)	39% (77%)
Students in my class have the opportunity to do the following at least once a week:	**Grade 5**	**Grade 8**	**Grade 11**
Seek alternative ways of responding to projects, assignments, etc.	66%	61%	23%
Work through "unsolvable" problems or situations	38%	29%	32%
Discuss the pros and cons of a situation before reaching a decision	79%	77%	68%
Discuss various students' approaches to problem-solving and decision-making	64%	55%	42%

* This number in brackets is the percentage of classes where students have these opportunities 'most days' or 'about once a week' (combined).

Some of the findings include:

- About one-third of Grade 5 teachers indicated that their students have the opportunity for reflecting on their thinking most days, while about 20% of Grade 8 and 11 teachers indicated their students have this opportunity.

Although students have key roles and responsibilities in determining their metacognitive skills and practices, educators and families also have important roles to play in nurturing the development of these skills and practices. For many students, setting goals, maintaining discipline, persisting to do their best work and reflecting on what they might do to improve their learning are not natural, automatic practices. Teachers engage students in active learning guided by quality curricula, and can utilize a variety of instructional strategies and practices to purposefully enhance metacognition. Figure 4 outlines some of the questions from the teacher questionnaire that provided data on aspects of metacognitive practices such as reflection, persistence and goal-setting. The percentage of teachers who responded with a frequency of 'most days' or 'about once a week' is also shown.

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Evaluate themselves upon completion of a task	15%	3%	6%
Understand that the process of thinking and the work shown is more important than the final result	55%	60%	39%
Students in my class have the opportunity to do the following at least once a week:	**Grade 5**	**Grade 8**	**Grade 11**
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Discuss various students' approaches to problem solving and decision-making	64%	55%	42%

Figure 4: Teacher Responses to Questions Regarding Metacognitive Practices

Some of the findings include:

- About one-third of Grade 5 teachers indicated that their students have the opportunity for reflecting on their thinking most days, while about 20% of Grade 8 and 11 teachers indicated their students have this opportunity.

- 15% of Grade 5 teachers, 3% of Grade 8 teachers and 6% of Grade 11 teachers reported that their students have the opportunity to evaluate themselves upon completion of a task most days.
- 55% of Grade 5, 60% of Grade 8 and about 40% of Grade 11 teachers said their students have the opportunity to understand that the thinking process is more important than the final result most days.
- About one-third of teachers in each of the grades responded that their students have the opportunity to work through "unsolvable" problems or situations at least once a week.
- About two-thirds of Grade 5, one-half of Grade 8, and two-fifths of Grade 11 teachers provide opportunity for their students to discuss various approaches to problem-solving and decision-making at least once a week.

Parents/guardians have the opportunity to support their child as s/he learns. They can discuss academic progress and school experiences with their child, promote curiosity and a desire to learn, and encourage their child. How they interact with their child both in learning and in other contexts can influence development of their child's metacognitive skills and practices. How they model some of these behaviours and dispositions is also a factor in metacognitive development. Students responded to questions about some of the interactions they have with their parents/guardians. These are listed in Figure 5. Again, this is a small list of interactions that may occur between parent and child, but it serves as an indicator of the range of support for Grade 5, 8 and 11 students.

Figure 5: Student Support-Related Metacognitive Practices

	Frequency of 'almost always' or 'usually'		
How often do your parents/guardians do the following:	**Grade 5**	**Grade 8**	**Grade 11**
Ask me questions and talk to me about school?	79%	74%	68%
Congratulate me when I do well at school?	90%	88%	81%
Talk with me about the importance of school?	70%	68%	68%
When they help me with homework, they make sure I understand it?	90%	78%	52%
Give me the opportunity to make some of my own decisions?	82%	79%	83%

Figure 5 indicates:

- About three-quarters of Grade 5 and Grade 8 students indicated that their parents/guardians talk to them about school and about the importance of school. This interaction declines somewhat in the upper grades.
- Fewer Grade 11 students than Grade 5 and 8 students indicate parents/guardians ensure understanding when helping with homework.
- For the most part, parents/guardians are congratulating students when they do well.

II. Student Achievement

In this chapter, achievements of Grade 5, 8 and 11 students are summarized. Results are provided for:

- overall achievement for each dimension of critical and creative thinking;
- achievement for some individual questions; and,
- comparisons of achievement between grades for identical tasks.

Sample questions for each dimension are also included.

Scope and Nature of the Assessment

Four dimensions of critical and creative thinking were assessed.

Dimension A – Strong sense thinking
Dimension B – Imaginative and evaluative thinking
Dimension C – Justified, independent thinking
Dimension D – Constructing knowledge

Students at the three grade levels (5, 8, and 11) completed open-response/performance-type questions within the four dimensions. Students had the opportunity to respond in their pre-selected areas of strength. Grade 5 students chose between the English Language Arts/Arts Education (E/A) combination and the Mathematics/Science (M/S) combination. Grade 8 students had an additional combination of Social Studies/Health (SS/H) and Grade 11 students the additional Social Sciences (SS) option.

Participants by booklet type

Grade 5

Gender	*E/A*	*M/S*
Males	113	195
Females	230	95
Not spsecified	25	17
TOTAL	368	307

Grade 8

Gender	*E/A*	*M/S*	*SS/H*
Males	90	102	58
Females	163	72	54
Not specified	15	27	16
TOTAL	268	201	128

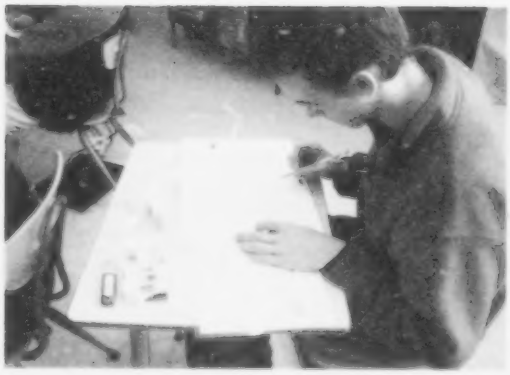
Grade 11

Gender	*E/A*	*M/S*	*SS*
Males	54	118	62
Females	135	60	40
Not specified	21	21	9
TOTAL	210	199	111

Rubrics (sets of criteria) describing five achievement levels were established for each dimension and each question within a dimension. Level 5 achievement is highest and Level 1 is lowest. Performance at Level 3 is deemed to be adequate or satisfactory work.
The question items provided students opportunity to attain any of these levels. *Appendix A* describes the dimension rubrics in detail.

Teachers scored all students' work. These professionals were very interested, and engaged well in the scoring task. They examined the criteria, the question items, and student work examples at each achievement level. Each student was assigned a level for each question or question part in a particular dimension and then an overall level for that particular dimension. The overall score for Dimensions A, C and D was determined after scoring the separate questions within the particular dimension. The overall level for Dimension B was scored holistically. This was done by viewing all the questions in the dimension, getting a general impression of the student work, and assigning a level based on their professional judgement.

- *Level 5* achievement is the best and most insightful work of our most capable students.
- *Level 4* achievement indicates high proficiency and application skills.
- *Level 3* achievement is adequate or satisfactory work.
- *Level 2* achievement represents only basic understanding and lacks consistency.
- *Level 1* achievement is limited and poor understanding.



Graph Interpretation

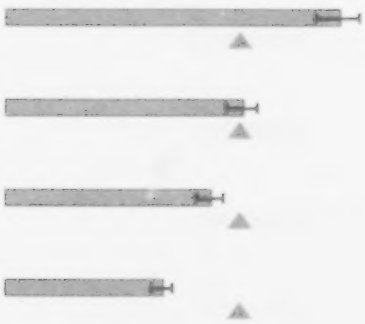
On the graphs in this section, the dark coloured bar shows the actual performance of students who wrote the assessment. Some bars may show performance for a particular level and others show accumulative performance. Standard-setting panelists decided on the percentage of Saskatchewan students that should be performing at or above each of the five levels. Their decisions are represented by triangles (median score of panelists) and grey bars (interquartile range of panelists) on the performance achievement graphs.

The interquartile range represents the middle 50% of panelists' judgements. The very highs and very lows are not included.

Level 3 achievement was deemed to be adequate and acceptable work for each grade level. Assessment items were designed to reflect this premise.

In this assessment, the percentages calculated are based on samples of students. Therefore, these are estimates of the actual performance students would have demonstrated had all students in the province taken the assessment. Since a sample is rarely exact, it is common practice to provide a range of percentages within which the actual performance is likely to fall. This range of percentage values is called a confidence interval. The confidence interval represents the high- and low-end points between which the actual achievement level would fall 95% of the time. In other words, one can be confident that the actual performance level of all students would fall somewhere into the established range 19 times out of 20 if the assessment were repeated with different samples from the provincial population.

In the graphs of this report, confidence intervals are represented by ⊢⊣. Students' performance compared to expectations can be determined by looking at the relative positions of the achievement bar (▬) and the expectation range (▲). The following relationships could exist:



Results are exceeding expectations

Results are meeting expectations

Results are approaching expectations

Results are below expectations

Dimension A: 'Strong Sense' Thinking

Dimension A focussed on fair-minded or strong sense thinking. It examined how students seek out the most accurate and fair decisions regardless of their own particular interests or biases. It took into account how decisions are sensitive to the feelings of others and reflect a positive impact on society as a whole.

Figure 6: 'Strong Sense' Thinking – Level 3 and above

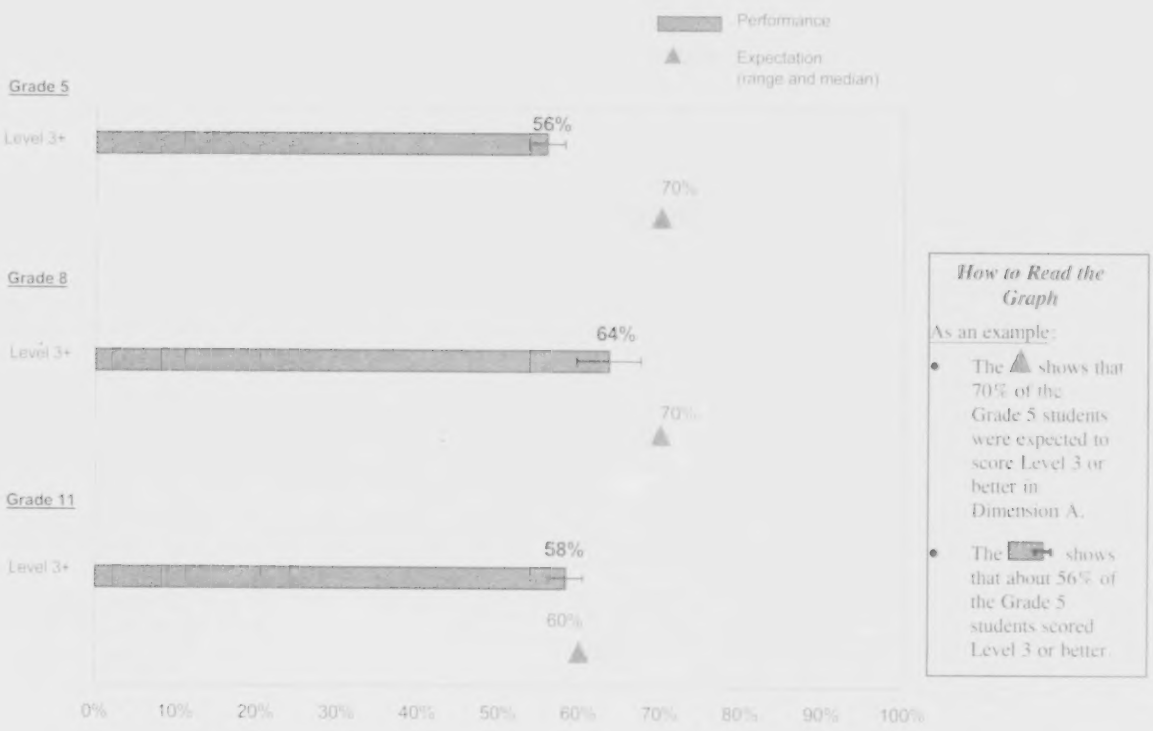


Figure 6 shows that Grade 5 students are below panelists' expectations, Grade 8 students are approaching expectations (the grey bar is within the confidence interval bar), and Grade 11 students are meeting provincial expectations (the median is within the confidence interval bar) in their performance of strong sense thinking.

Figure 7: Performance Results (Accumulated Results and Expectations)

Highlights

- *Just over half of the Grade 5 students are performing at or above Level 3. Level 3 is considered to be adequate or satisfactory performance by the design of the assessment.*
- *Grade 5 students are not meeting expectations at the higher levels in Dimension A.*

Highlights

- *Approximately 65% of the Grade 8 students are performing at Level 3 (adequate) or above.*
- *Grade 8 students are meeting or approaching expectations at all levels except Level 5.*

Highlights

- *Almost 60% of the Grade 11 students are performing at Level 3 or above.*
- *Grade 11 students are meeting expectations at Levels 2 and 3 but not meeting expectations at the upper levels.*

The Nature of the Questions for Dimension A

Students had the opportunity to respond to questions that required them to employ intellectual integrity and empathy. Did they take a fair-minded position for the circumstances? Did they sensitively consider the feelings and viewpoints of others? Did their decisions reflect a positive impact on society and were the decisions in the best interest of those involved?

'Discman' was one question given to all Grade 5 and 8 students to provide an opportunity to demonstrate strong sense thinking in Dimension A. Figure 8 shows a Level 5 response from a Grade 8 student. For the actual image of this student response see Appendix F.

Figure 8: Grade 8 Exemplar - 'Discman' Level 5

DISCMAN

You are in grade 8 and someone has stolen your classmate's DiscMan. You witnessed the theft and you know who took it. The class field trip has been cancelled until someone tells what has happened. The person who stole the DiscMan knows that you know and warns, "You better not talk!" The scoring rubric on the next page gives you some idea of how to answer the questions.

1. What are some possible ways to deal with this situation? Think of as many as you can.	What are the consequences (results of an action taken) that might happen for each of the ways?
a) **If** *I told that I had seen the thief and told who took it*	**Then**, *the class would be able to go on the field trip but the thief might do something bad to me.*
b) **If** *I did not say anything*	**Then**, *the class would not go on the trip and the Discman would never be recovered.*
c) **If** *I persuaded the person who stole it do give it back then*	**Then**, *the class would get to go on the filed trip. My classmate would get his Discman back and the thief wouldn't get in so much trouble.*
d) **If** *I told who did it and told that they were going to hurt me if I told on them*	**Then**, *the class would get to go on the field trip and the thief would be in trouble.*
e) **If** *I told my classmate who stole it*	**Then**, *they might get really mad at the person who did it. The class would get to go on the field trip.*

2. Look at what you wrote in question 1. What will you choose to do? Explain why you chose this action over the others.

I would chose to persuade the person who did it to admit that they did it because then it works out better for everyone in the end.

Scoring Rubric

Level 5	Level 4	Level 3	Level 2	Level 1
States a variety of logical alternatives and consequences AND considers all persons involved - thief, self, victim, class AND decision is supported and in the best interest of society.	States a variety of logical alternatives and consequences AND considers 3 of the persons involved AND decision is supported in the best interest of society.	States a few logical alternatives and consequences AND considers 2 of the persons involved AND decision goes beyond themselves.	States a couple logical alternative OR consequences AND considers only self AND decision is self-centered or not given.	Illogical alternative OR weak consequence AND considers only self AND decision not given

Figure 9 shows a comparison between Grade 5 and Grade 8 results for this question.

Figure 9: Grade Comparison Results for 'Discman' Question

	Level 5 (high)	Level 4	Level 3	Level 2	Level 1
Grade 5	2%	10%	44%	33%	11%
Grade 8	7%	18%	43%	26%	7%

Since scoring rubrics were the same in both grades, results from this question show that as students progress from the fifth to the eighth grade, they expand their 'strong sense' thinking.

Grade 11 students had the opportunity to demonstrate Dimension A thinking by responding to a question *'Making Decisions'*. A Level 5 response (Figure 10) and a Level 3 response (Figure 11) from Grade 11 participants follow. For an actual image of these responses see Appendix F.

Figure 10: Grade 11 Exemplar – 'Making Decisions' – Level 5

Ethics is concerned with human behaviour and making decisions that are of greatest benefit to society. There are many situations in society that require ethical decisions. Here are some topics that require ethical decisions:

- Abortion
- Animal Rights
- Capital Punishment
- Consequences of crimes
- Downloading music off the Internet
- Euthanasia
- Genetic modification
- Legal drinking age
- Mandatory curfew
- Marijuana for medicinal use

1. Choose from the list above or choose another ethical topic that you feel strongly about. State your position on the topic. Be sure to support, justify and defend your position. Outline, chart or point form is acceptable.

Student Scoring Rubric

Level 5 (high)	Level 4	Level 3	Level 2	Level 1 (low)
At least 3 major defenses with supporting details for each and with positive impact on society.	At least 2 major defenses with supporting details for each and with positive impact on society.	At least 2 major defenses with supporting details for one and slight benefit to society.	At least 2 defenses with no supporting details and fairly predictable and self-centered.	One supporting idea that is self-centered.

2. There are other people who feel differently than you do about the topic. Think of their position. Why do you think they might feel the way they do? List some of their reasons. What might be some of their strongest opposition to your view? Explain fully.

Student Scoring Rubric

Level 5 (high)	Level 4	Level 3	Level 2	Level 1 (low)
Clearly states with supports the view-points of others. Considers their strongest opposition.	States with some support the viewpoints of others and considers their strongest opposition.	States others viewpoints with either some support or with strongest opposition.	States others' viewpoint.	Considers one's own view.

3. Sometimes compromises have to be made by people or groups of people when making decisions regarding ethical issues. What comprises(s) would you be willing to make on the topic that you chose? Explain fully.

Student Scoring Rubric

Level 5 (high)	Level 4	Level 3	Level 2	Level 1 (low)
Considers with sensitivity the view-points of others in decision making and still has positive impact on society.	Considers viewpoints of others in decision making and still has positive impact on society.	Slightly considers viewpoint of others and decision has slight impact on society.	Slightly considers viewpoints of others and decision is self-centered.	Unwilling to comprise and decision is self-centered.

Figure 11: Grade 11 Exemplar – 'Making Decisions' Level 5

The following is a Level 5 response. For the actual image of this student response see Appendix F.

1. *Marijuana, if determined to be really helpful, should definitely be allowed for medical use. In the big picture it is not really that dangerous, so there shouldn't be a big worry over it. There are, I'm sure, many legal prescription drugs that someone could overdose on and die. And sure, marijuana could have side effects that are determined, but so do some drugs currently legally used. If the benefits outweigh the harmful side effects, then why not use it? The reason people would be afraid if it were legalized is that it would be abused if it were legalized as medicine. But as long as it is stored in small quantities in a locked room, like narcotics already are at hospitals, there shouldn't be need to worry. And the people that would try and abuse it? Even if it weren't legalized, they would probably find some anyway, so they would still pose the some threat to Society.*

2. *People who feel that marijuana should not be legalized argue that patients could fake illness to obtain marijuana legally, that doctors themselves might abuse it or that there is no where safe to store it without someone being able to break in and steal it. I think they aren't thinking clearly because of the thoughts drilled into our minds that marijuana is pure evil and to stay away from it. We are only presented with one side of the story - the negative impacts of it. We are never told (in school, health class for example) the whole story, that it could have some benefit, and allowed to make our own decisions about it.*

3. *If another legal drug was found to be suitable for helping patients just as much as marijuana, then I would agree with just using that drug. If its already legal, it'd be a lot less of a headache than trying to legalize something many people are strongly against. But if marijuana is the only treatment known it must be allowed. To ensure no abuse would happen, when prescribed, the patient's condition should be confirmed by maybe a dozen other doctors to ensure nobody would steal it in impressive amounts, it should be kept in small amounts and locked.*

Figure 12: Grade 11 Exemplar – 'Making Decisions' Level 3

1. *I believe that the death penalty should be assessed to any person who indulges in any planned murder or rape. I do not think that the peoples tax money should be sent to jails to feed these criminals because they do not deserve it. They take the life of someone else intentionally so I believe they should pay the consequences.*

2. *I think that the strongest opposition would be that every citizen should have equal rights and that nobody deserves to die.*

3. *The Canadian government will keep its jail system the same. The convicted will get a maximum of life in prison. I think it is a waste of time.*

Figure 13: Grade 11 Results for 'Making Decisions' Question

	Level 5	Level 4	Level 3	Level 2	Level 1
Grade 11	5%	17%	35%	32%	12%

Figure 13 shows that 57% of Grade 11 students performed at Level 3 or higher on this question, which is very close to the overall performance of Grade 11 students for Dimension A.

Dimension B: Imaginative and Evaluative Thinking

Dimension B examined how effectively students use imaginative and evaluative thought processes. Are they fluent, flexible and original thinkers? Can they discover relationships, identify differences and similarities, evaluate alternatives to a decision? Students had the opportunity to respond to about six questions that assessed their thinking in Dimension B.

Figure 14: Imaginative and Evaluative Thinking Level 3 and above

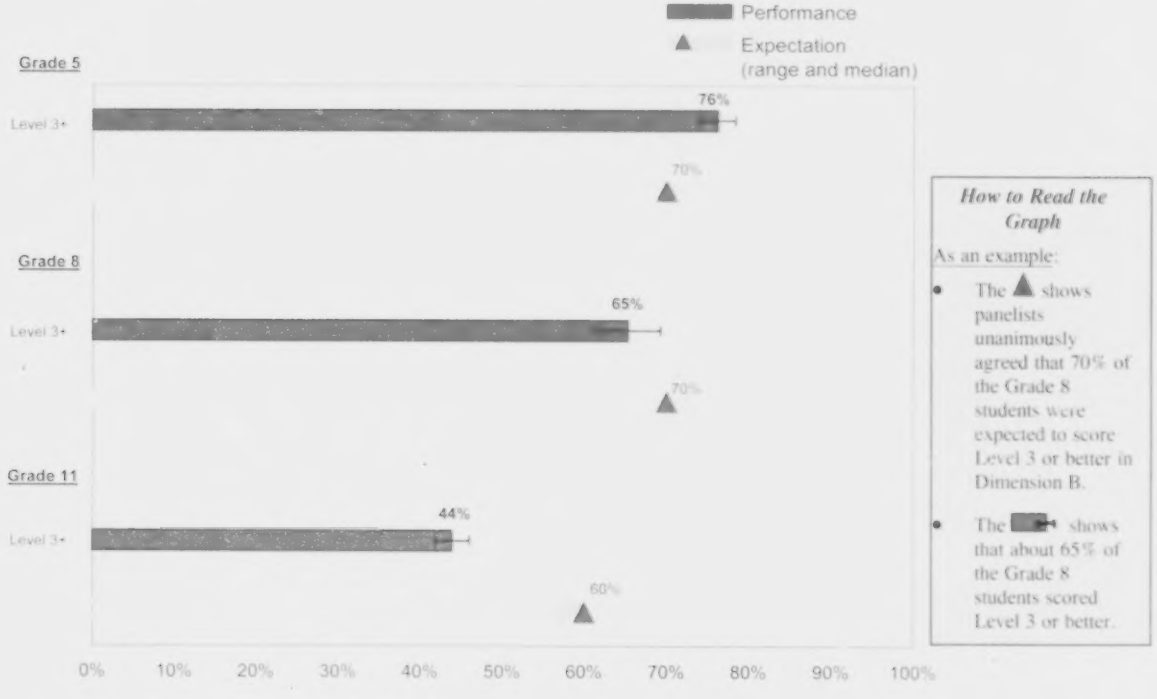
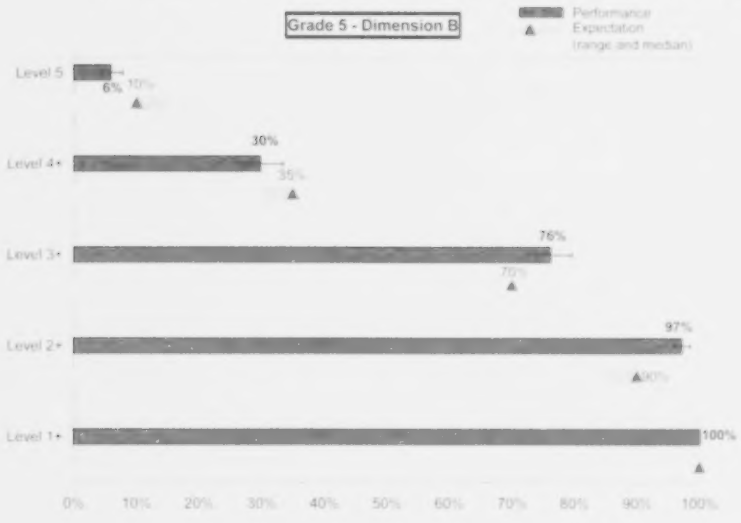


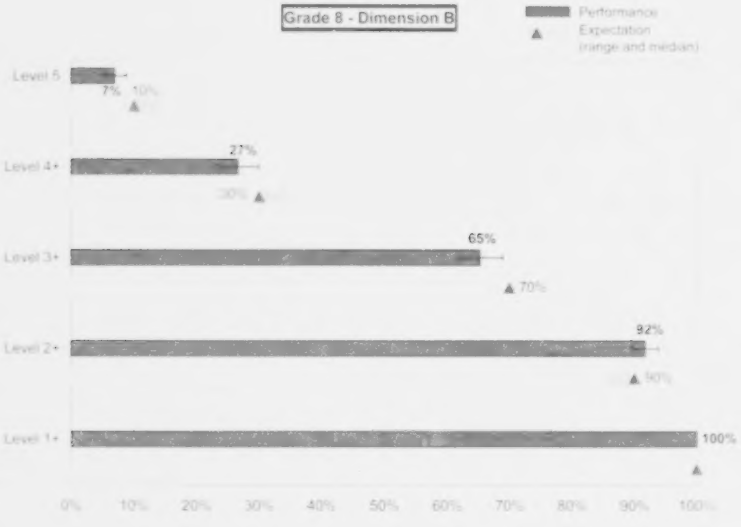
Figure 14 shows that Grade 5 students are exceeding the provincial expectation for adequate or above performance in their imaginative and evaluative thinking while Grade 8 and 11 students are not meeting the provincial standards in Dimension B for adequate or above performance.

Figure 15: Performance Results (Accumulated Results and Expectations)



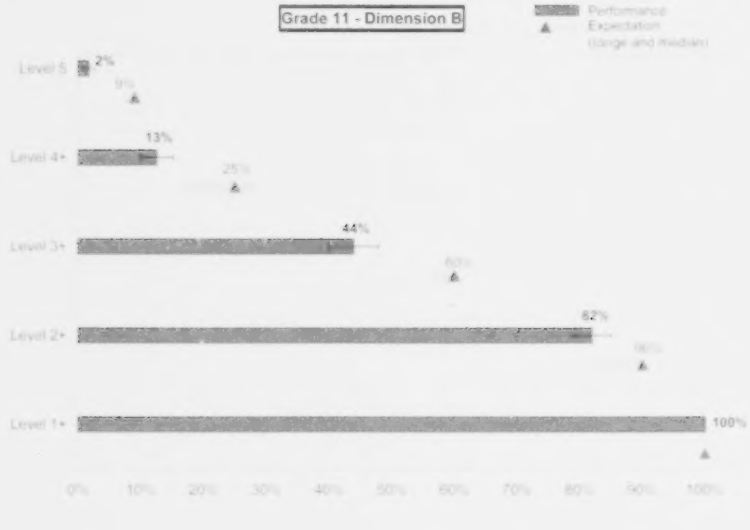
Highlights

- *Approximately three-quarters of the Grade 5 students are performing at Level 3 or above.*
- *Grade 5 students are approaching expectations at Level 4 but not meeting expectations at Level 5.*



Highlights

- *About two-thirds of Grade 8 students demonstrated adequate or better imaginative and evaluative thinking, however, this is slightly below provincial expectations.*
- *Grade 8 students are meeting expectations at Level 4 but not at Level 5.*



Highlights

- *Under half of Grade 11 students are performing at Level 3 or above.*
- *Grade 11 students are not meeting expectations at Levels 3, 4 and 5.*

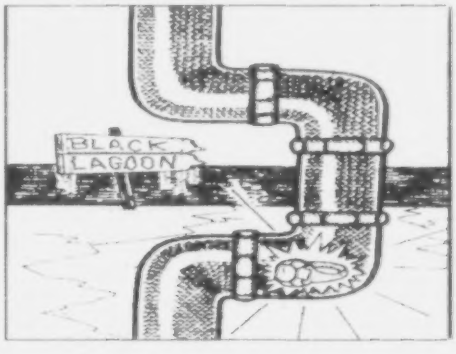
The Nature of the Questions for Dimension B

Students had the opportunity to demonstrate Dimension B thinking with their responses to six different open-response and performance-type questions, one of which was completed with a partner. Did students generate a number of responses including some insightful ones? Did they accurately assess similarities and differences among items? Did they display uniqueness or originality in their thinking?

'Down the Drain' provided an opportunity for all Grade 5 students to demonstrate evaluative and imaginative thinking (Dimension B). This was the one question in Grade 5 that was done with a partner. Figure 15 is a Level 5 exemplar from a Grade 5 student. For an actual image of this student response see Appendix F.

Figure 16: Grade 5 Exemplar – "Down the Drain" – Level 5

A priceless (very expensive) diamond ring has been lost down this drain.



You are asked to recover (get back) the diamond ring. You need to know the following:

a. The drainpipe leads to a black lagoon. The lagoon is a body of water used to treat sewage
b. Nothing has ever been recovered from the lagoon.
c. The pipe has a diameter (distance across the middle) of 10 cm.
d. The pipe is made of cast iron (heavy iron).
e. The ring is made of gold.
f. The ring is in the elbow just before it drains into the black lagoon.

1. List or draw all the ideas that you can think of to get the ring. Try to think of some really clever ways ("WOWS").

    1. *Make sewer back up with high pressure and the ring will pop out.*
    2. *Take a boat to the pipe and undo the pipe and take the ring out.*
    3. *Take hot air balloon. Put styrofoam on bottom. Disconnect pipe and take rings.*
    4. *Send sewer snake down the pipe.*
    5. *Send trained rat down the sewer pipe to get the ring.*

2. You and your partner must decide on the best way to get the diamond out. Pick the way you think is best and tell why.

    I think the best way is the trained rat because it is inexpensive and it wouldn't damage the pipe.

3. Explain why you think the other ways will not work as well.

    They are expensive and will damage the pipe and will put us at risk.

Scoring Rubric

Level 5: *About 5 ideas, including at least one novel* idea. Or fewer ideas with more novel ones, AND clear defensible reasoning for choice, AND explicit evaluation of some other solutions.*
*novel – unique, out of the ordinary, shows creativity.

Level 4: *About 4 ideas including at least one novel idea, AND defensible reasoning for choice, OR evaluation of some other solution explicitly or by inference.*

Level 3: *About 3 ideas OR one novel, AND adequate reasoning for choice, AND some indication (inference) that another idea underwent evaluation.*

Level 2: *About 2-3 ideas, AND limited reasoning for choice, OR no evaluation OR 1of 3 conditions strongly met.*

Level 1: *1-2 ideas, OR limited reasoning OR limited evaluation OR illogical reasoning AND no evaluation. (1 or none of 3 conditions met).*

On the following page is a Level 3 exemplar of *'Down the Drain'* from a Grade 5 student. For an actual image of this response see Appendix F.

Figure 17: Grade 5 Exemplar – 'Down the Drain' Level 3

1. List or draw all the ideas that you can think of to get the ring. Try to think of some really clever ways ("WOWS").

   I think that someone should be at the end of the drain and when it flushes then the person can grab the ring. Or take a wrench and put it around the pipe and open the pipe up. Then grab the ring and put the pipe back together. Get a string and a hook and tie them together. Then put it down the drain and hook onto the ring and pull it up slowly. Put a pail under the pipe and then take the ring.

2. You and your partner must decide on the best way to get the diamond out. Pick the way you think is best and tell why.

   We like the idea about putting a pail under the pipe and then take the pail and look for the ring.

3. Explain why you think the other ways will not work as well.

   Because if you grab the ring out of the black lagoon then your hands get smelly, it may get wrecked and not be able to put back together and then you have to replace it.

Scoring Rubric

Level 5: *About 5 ideas, including at least one novel* idea. Or fewer ideas with more novel ones, AND clear defensible reasoning for choice, AND explicit evaluation of some other solutions.*
*novel – unique, out of the ordinary, shows creativity.

Level 4: *About 4 ideas including at least one novel idea, AND defensible reasoning for choice, OR evaluation of some other solution explicitly or by inference.*

Level 3: *About 3 ideas OR one novel, AND adequate reasoning for choice, AND some indication (inference) that another idea underwent evaluation.*

Level 2: *About 2-3 ideas, AND limited reasoning for choice, OR no evaluation OR 1of 3 conditions strongly met.*

Level 1: *1-2 ideas, OR limited reasoning OR limited evaluation OR illogical reasoning AND no evaluation. (1 or none of 3 conditions met).*

Figure 18: Grade 5 Results for 'Down the Drain' Question

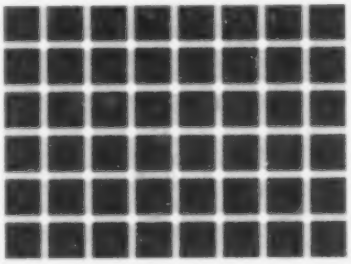
	Level 5	Level 4	Level 3	Level 2	Level 1
Grade 5	10%	20%	47%	18%	5%

Figure 18 shows that 77% of Grade 5 participants performed at Level 3 or higher for this question.

'Making Connections' was one question given to all Grade 8 and 11 students to provide them with an opportunity to demonstrate imaginative and evaluative thinking. Following are exemplars of a Level 5 response from a Grade 8 participant and one from a Grade 11 participant. For an actual image of these responses see Appendix F.

Figure 19: Grade 8 Exemplar –'Making Connections' Level 5

1. Look at this picture for a few seconds. Describe what you see.



I see a plaid-like cloth,
I see roads, I see pipelines,
I also see a game of match
(like where you flip two cards
over and match them all up,
I'm not sure of the name.

Level 5: Well-explained connection similar in at least 3 concrete ways or 1 abstract way.
Level 3:Adequately explained connection similar in at least one way.
Level 1: Connection is illogical or not given

2. Think about what you saw and wrote. Now use your imagination to make connections, associations or relationships with the picture and life. Where does this take your thinking? Describe these connections, etc. Explain fully by providing details.

A connection would be when I met my best friend in Kindergarten I saw the outside of her and thought she was going to be mean and bossy but then when I saw the real her and she was kind and gentle.

Scoring Rubric

Level 5: *Well-explained analogy that reaches abstract or very insightful* level.*

Level 4: *Dynamic description using a more creative example. e.g. snow flakes falling at night. Analogy that reaches an abstract or insightful level but is not well-explained*
OR analogy at a concrete level that shows breadth of thinking (2-3 ideas).

Level 3: *Dynamic description: dots jump around change color, white dots disappear, corner dots change color.*
Explained analogy at a concrete level dealing with the static nature of the picture.
OR 3 or more concrete ideas with no explanation.
OR an explanation of what is actually happening.

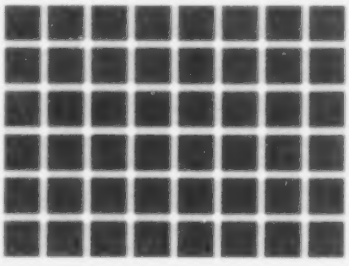
Level 2: *Static description of dots AND lines.*
Analogy makes reference to the static nature of the dots but no explanation.

Level 1: *Static description of dots OR lines.*
Analogy is illogical.

*insightful – beyond grade level expectation, profound, perceptive. E.g. This reminds me of the ever changing quality of life, we go forwards and sometimes have to go backwards, or do something and have to redo it or revise it.

Figure 20: Grade 11 Exemplar – 'Making Connections' Level 5

1. Look at this picture for a few seconds. Describe what you see.



I see a trick you might find in a book that tries to trick your eyes. I see six dots in a square. When I keep my eyes still, and black & white dots when I move my eyes.

Level 5: Well-explained connection similar in at least 3 concrete ways or 1 abstract way.
Level 3: Adequately explained connection similar in at least one way.
Level 1: Connection is illogical or not given.

2. Think about what you saw and wrote. Now use your imagination to make connections, associations or relationships with the picture and life. Where does this take your thinking? Describe these connections, etc. Explain fully by providing details.

Sometimes when you're really focused on one thing in your life, like school, a girl/boyfriend, or work, you don't really see the whole picture, just as when you focus on one part of the picture, you don't see the rest of the dots.

Your mind can play tricks on you in life. Maybe you have an addiction, but you can't see it, or you seem to ignore the fact that your partner is abusive and maybe when you look in the mirror all you see is an ugly person, when you're really not. This picture plays tricks on your mind, just as life seems to at times.

Scoring Rubric

Level 5: *Connection is all of the following: original, sophisticated, well elaborated or extended.*

Level 4: *Dynamic description using a more creative example, e.g. snow flakes falling at night. OR a figurative description. Connection is original with some elaboration or extension.*

Level 3 *Dynamic description: dots jump around change color, white dots disappear, corner dots change color. Connection is obvious and shows some signs of critical and creative thought (original, elaborated, or extended). OR 3 simple connections. OR an explanation of what is actually happening.*

Level 2: *Implicit description of change. Static description of dots AND lines. Analogy makes reference to the static nature of the dots but no explanation.*

Level 1: *Static description of dots and/or lines. Connection is illogical or does not show any connection.*

Figure 21: Grade 8 and 11 Results for 'Making Connections' Question

	Level 5	Level 4	Level 3	Level 2	Level 1
Grade 11	4%	16%	24%	40%	14%
Grade 8	10%	35%	42%	6%	8%

As indicated in Figure 21, a greater percentage of Grade 8 students performed at Level 3 or higher on this particular question than Grade 11 students. Since the scoring rubrics were not identical for the two grades, a comparison could not be drawn between them. In Grade 11, the results for this question, one of six in this dimension, are the same as the overall dimension results. However, in Grade 8, the results for this question are about 20% higher than the overall Grade 8 results for this dimension (see graph on page 20).

Dimension C: Justified, Independent Thinking

Dimension C investigated the following:

- Can students think for themselves?
- Can students develop their own perspective with support?
- Can students provide evidence for a conclusion?
- Can students examine various perspectives?
- Can students reflect on their thinking?

Participating students had the opportunity to demonstrate this thinking by responding to a few open-response/performance-type questions. Students were provided with scoring rubrics to assist them in knowing what was expected for the five levels of performance.

Figure 22: Justified, Independent Thinking - Level 3 and above

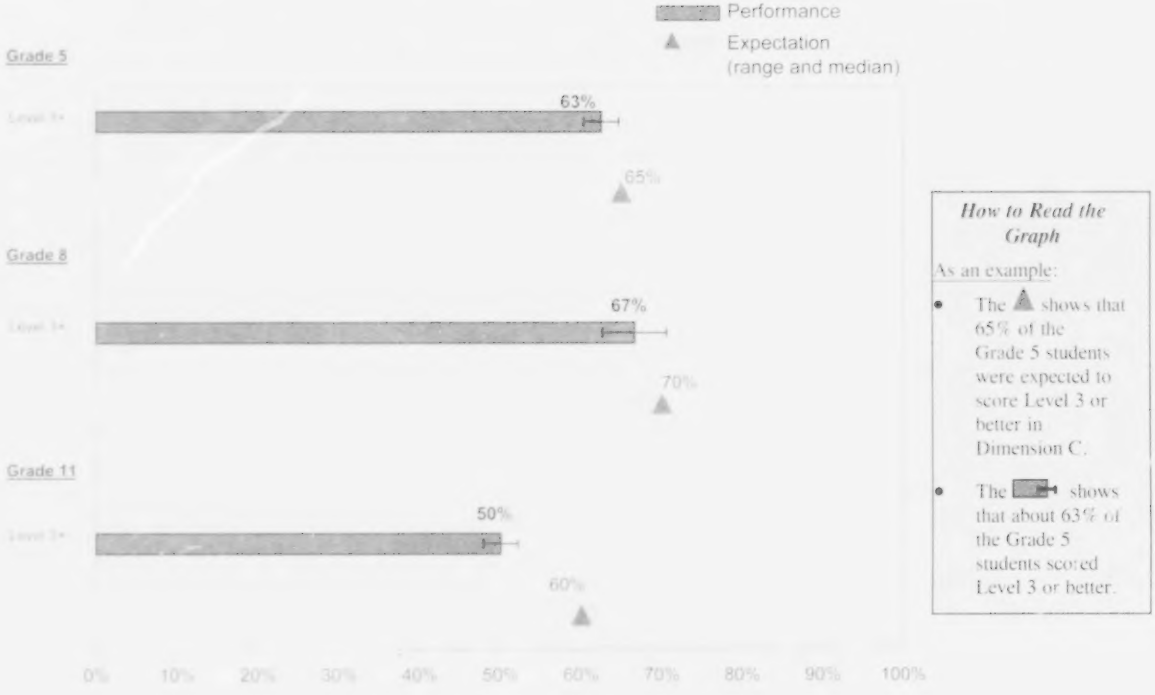
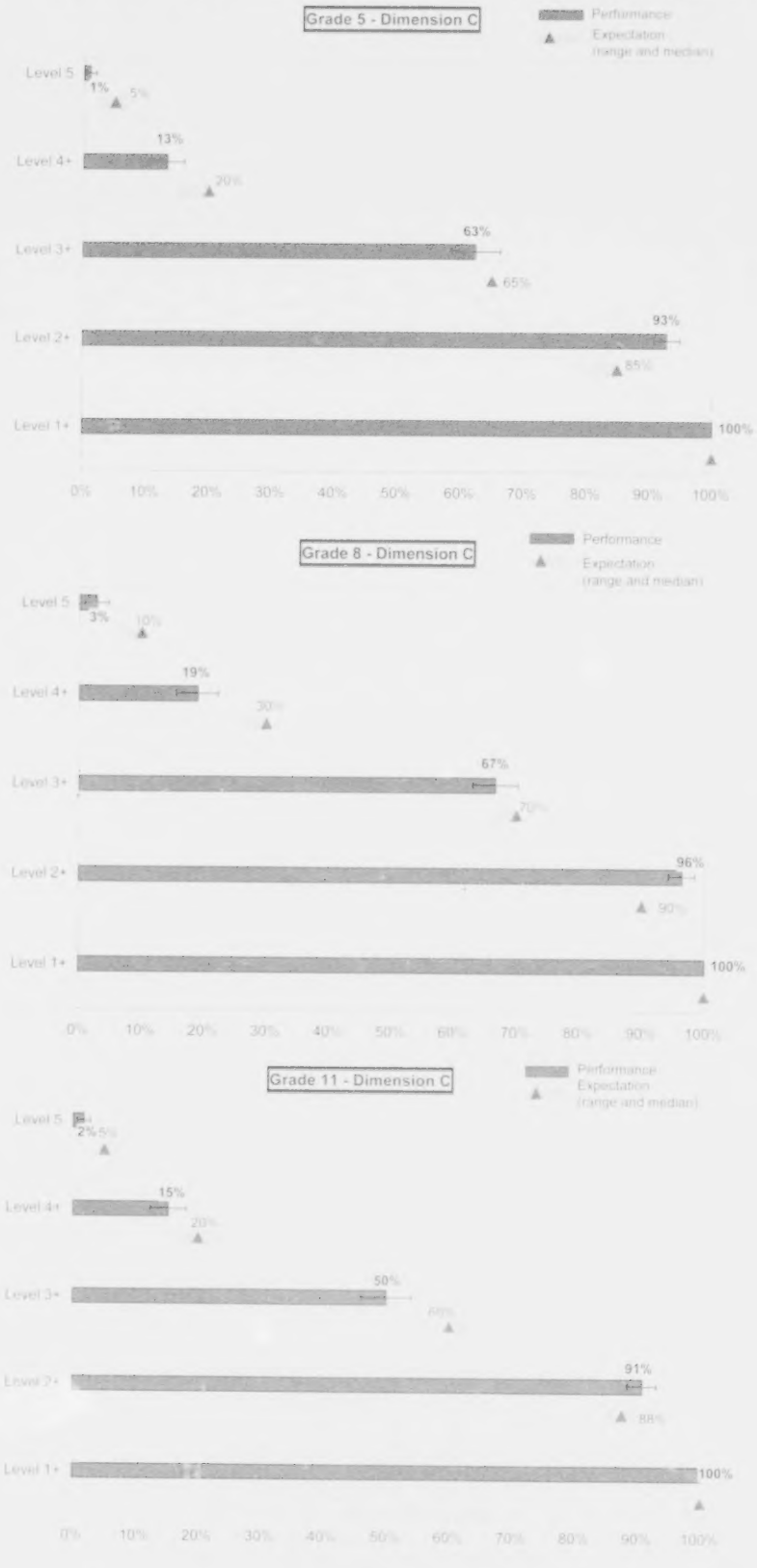


Figure 22 shows that Grade 5 and Grade 8 students in the province are meeting panelists' expectations while Grade 11 students are not meeting provincial expectations related to their justified and independent thinking (Dimension C).

Figure 23: Performance Results (Accumulated) and Expectations



Highlights

- *Grade 5 students are meeting expectations at Level 3 or above and approaching expectations at the upper two levels of achievement.*
- *Grade 5 students are exceeding expectations at Level 2.*

Highlights

- *Grade 8 students are not meeting expectations at Levels 4 and 5.*
- *67% of Grade 8 students are performing at Level 3 or above. This is meeting provincial expectations.*

Highlights

- *Grade 11 students are approaching expectations at Level 4 but falling somewhat short of expectations at Level 5.*
- *Fewer Grade 11 students than expected are performing at Level 3.*

The Nature of the Questions for Dimension C

Students had the opportunity to demonstrate Dimension C thinking with their responses to a few different open-response/performance-type questions. Students were asked questions that required them to think deeply about topics, develop and justify their perspective, and consider alternative viewpoints. They were also asked to reflect on their thinking by providing an analysis of thoughts affecting their performance.

'Garden' #5 was one Dimension C question in the Grade 5 Math/Science booklet. A comparablel question in the Grade 5 English Language Arts/Arts Ed booklet was *'Gas Station' #1*. Below is an exemplar of a Level 5 response from a Grade 5 participant in each of the booklet choices. The same scoring rubric was used for both and is found on the following page. For actual image of these responses refer to Appendix F.

Figure 24: Grade 5 Exemplar - 'Garden' #5 Level 5

5. Some companies that produce vegetables for sale are switching to grow them <u>without</u> any bug spray or weed spray. They are called "organic growers." What result (effect) would organic growing (no sprays or chemicals) have on the following people? Explain your ideas. See the rubric on page 9 of your booklet.

Workers in the gardens?	Owners of the company?	People who buy the veggies?
They might get eaten by mosquitoes or other bugs	*They won't make as much money.*	*The Veggies won't be as good*
It will be harder.	*They will have angry mobs.*	*They will stay better*
Won't get paid as much money as they would if they did it the other method.	*They wouldn't be one of the causes of acid rain.*	*They will have bugs*
They won't be poisoned.	*They won't be blamed for food poisoning.*	*They will love eating*
		They won't be poisoned.

Figure 25: Grade 5 Exemplar - "Gas Station" #1 Level 5

A grassy field property near the school has been an empty lot for many years. Land developers have just bought the field. They think this property would be a good location for a gas station. Some people in the neighbourhood do not want a gas station there. Others think it will be a good business.

What results (effects) would the new gas station have on the people in the chart below? Note: the last column asks you to think of someone else who would be affected. Do not put a person's name in the blank, put the person's job or position. You can use point form. See the rubric on page 9 of your booklet.

Owner of the gas station	Parents of school kids	Someone else
- People shouting at him - Getting money for business - Getting respect for owning something - Rumors spreading around from the people who don't want the gas - getting greedy for money	- Get gas after dropping kids off - won't have to drive far to get gas - Can get a snack for breakfast if they didn't have any	- Kids could buy stuff during recess - kids could get distracted in class by the loud cars - kids could ask people to go over with them during class

Scoring Rubric

Level 5: *Extensively (3+) considers varied effects for each group. May consider positive and negative effects. Demonstrates insight* concerning the views of some involved.*

Level 4: *Considers about three varied effects for each group OR demonstrates insight concerning the views of at least two involved.*

Level 3: *Considers at least two effects for two groups OR an insightful effect for one group.*

Level 2: *Considers one obvious effect for two groups involved OR extensively considers the effects on one group OR considers only feelings.*

Level 1: *Considers an effect for one group involved OR reasoning is inappropriate.*

*insight - an idea that is profound, beyond normal expectations for grade 5's, e.g., it would provide employment for people, maybe even some of the parents who don't have a job, extra traffic noise may be distracting to kids in school or to older people trying to sleep, many dead animals may attract noisy birds which may distract students, school would need to organize a safety patrol, competition may mean lower gas prices for the people who buy it, it might be too convenient for kids to get into trouble stealing.

Figure 26: Grade 5 Results for "Garden" #5 and "Gas Station" #1

	Level 5	Level 4	Level 3	Level 2	Level 1
Garden	5%	25%	44%	19%	8%
Gas Station	8%	19%	33%	30%	9%

One Dimension C question that Grade 8 and 11 students had the opportunity to respond to was '*Free Tuition*'. The question and scoring rubrics were the same for both grades. Figure 27 is a Level 5 exemplar from a Grade 8 participant and Figure 28 is a Level 5 exemplar from a Grade 11 participant. For actual images of these responses see Appendix F.

Figure 27: Grade 8 Exemplar - 'Free Tuition' Level 5

Suppose that first year tuition for students attending technical school, college, or university will be available for Saskatchewan students in September of next year. Suppose that the government has allocated a fixed amount of money for this project. Please answer the following questions based on the project. You may want to read through all questions first.

Do you agree with this idea? Think of as many reasons as you can to support your decision.

I do not agree with this because I feel it will get abused by society. People may use this so they can get away from home, and party in the big city. Another reason I don't agree with this idea is because of course, we the people of Saskatchewan would be paying for it through taxes. Instead to keep taxes low you shouldn't do this.

Another reason I don't agree with this is if there are too many students who apply, who gets it. Instead everyone should pay for themselves. It may also cause trouble because then a lot more students will want to attend secondary education, they won't make it here in Saskatchewan, so would have to move to another province.

Scoring Rubrics

Level 5: *Perspective is well supported and well articulated with ≥ 3 logical reasons including ≥1 insightful* reason.*

Level 4: *Perspective is well supported with ≥ 3 logical reasons*
OR ≥ 1 very well-supported, insightful reason.*

Level 3: *Perspective is supported with ≥ 2 logical reasons including some details.*

Level 2: *Perspective is weakly supported with about 2 logical reasons.*

Level 1: *No support or illogical support for perspective*

*insightful – Yes, insightful– a more global perspective: e.g. a better educated society, greater equity, stimulate economy
-secondary consequences: e.g. strained facilities in SK may lead to out of province moves.
No; insightful – presents a reasonable alternative, focuses on future problems (increase in one year and then a dramatic drop in next), unemployed kids back in the job market, unemployed professors.

Figure 28: Grade 11 Exemplar - 'Free Tuition' Level 5

Do you agree with this idea? Think of as many reasons as you can to support your decision.

If the first year tuition of school was free, students would go to school for one year without a goal and a good reason. At which it would cause many problems. Many kids would just go to party for one year and not care about school. This would upset the people who take university and their future seriously. This would also make it more difficult for students to get into University. First year courses would be full very fast probably leaving out people who deserve to be there.

Figure 29: Grade 8 and 11 Results for 'Free Tuition'

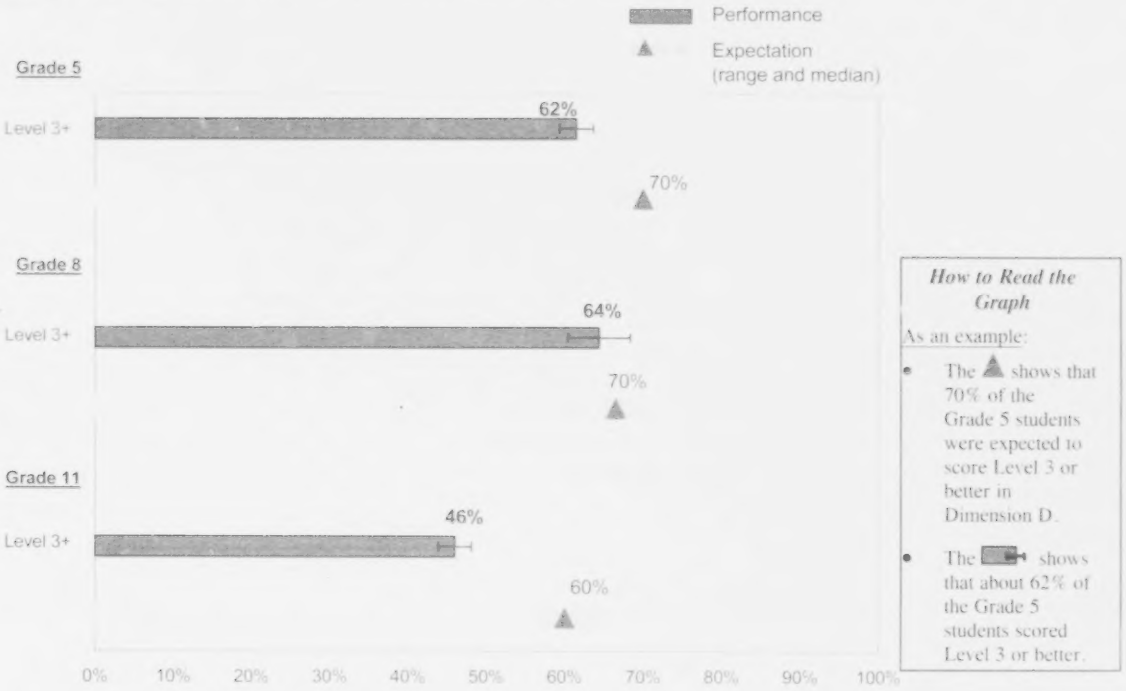
	Level 5	Level 4	Level 3	Level 2	Level 1
Grade 8	8%	11%	29%	39%	15%
Grade 11	6%	21%	23%	38%	12%

There appears to be little difference between the Grade 8 and Grade 11 scores for this particular question.

Dimension D: Constructing Knowledge

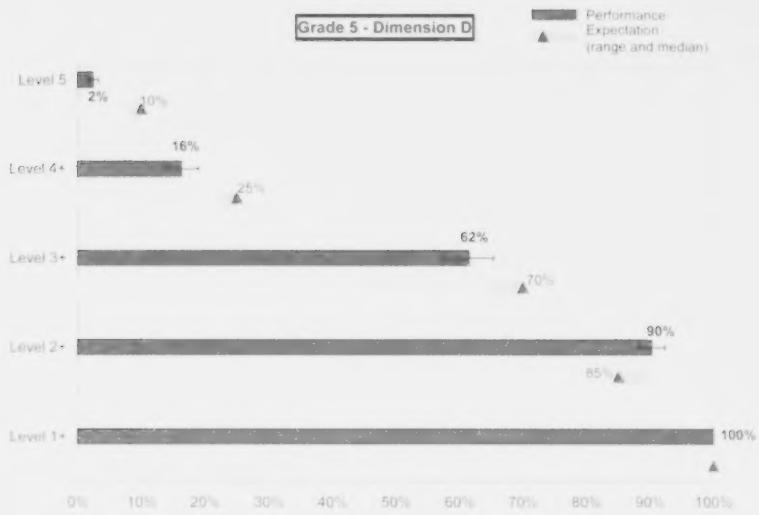
Dimension D questions provided students opportunity to participate in scientific inquiry or the creative problem-solving process in the arts, depending on their booklet choice. They focused attention on their knowledge and gaps in knowledge related to a specific topic (What do I know? What don't I know?). They practised their perceptual abilities through concrete experiences and made careful observations as they participated in the Dimension D questions.

Figure 30: Constructing Knowledge- Level 3 and above



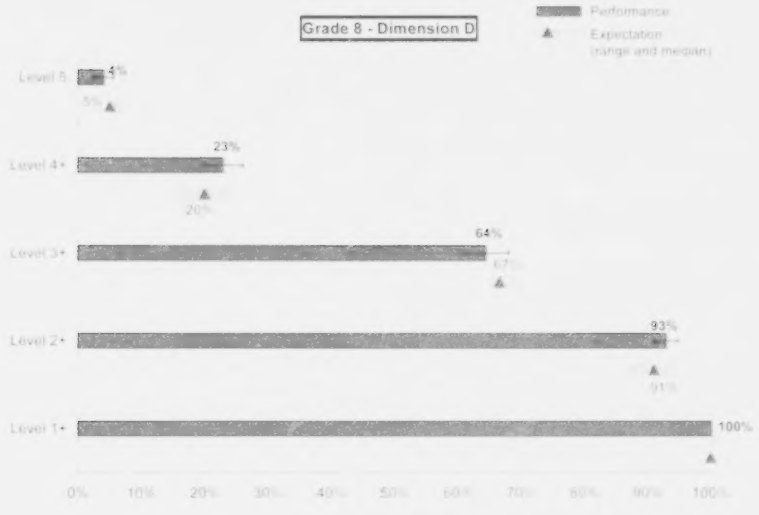
About two-thirds of Grade 5 and Grade 8 students, and just under half of Grade 11 students demonstrated adequate or better performance in this dimension of critical and creative thinking. Figure 30 indicates that only Grade 8 students met the provincial expectation of the panelists.

Figure 31: Performance Results (Accumulated) and Expectations



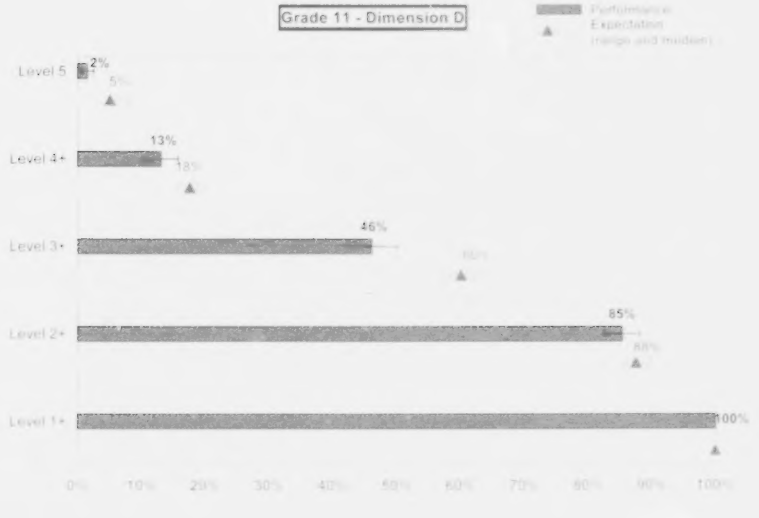
Highlights

- *Fewer Grade 5 students than expected are achieving at the higher levels of performance (Levels 4 and 5).*
- *Approximately 62% of the Grade 5 students are performing at Level 3 or above and approaching the expectation.*



Highlights

- *Grade 8 students are meeting or approaching expectations at all levels of performance.*
- *About two-thirds of Grade 8 students are achieving at least Level 3.*
- *At Level 4 performance, they are meeting provincial expectations in Dimension D.*



Highlights

- *More Grade 11 students are expected to be achieving at Levels 3 and 5, while they are approaching expectations at Level 4.*
- *About 46% of the Grade 11 students are performing at Level 3 or above.*

The Nature of the Questions for Dimension D

Students responded to open-response/performance-type questions that assessed their ability to construct knowledge. Did students make detailed, careful and accurate observations that provided insight to the task? Did they focus on gaps in knowledge?

'Seeds' #2 was one Dimension D question in the Grade 5 Math/Science booklet that gave students an opportunity to demonstrate perceptual abilities and gaps in knowledge. As they attempted to identify the samples of grains, they found there were two samples which seemed to fit the same criteria. Figure 30 shows the criteria used for identification of the seeds and Figure 31 is an exemplar of a Level 5 response from a Grade 5 participant. For an actual image see Appendix F.

Figure 32: Seed Identification Key

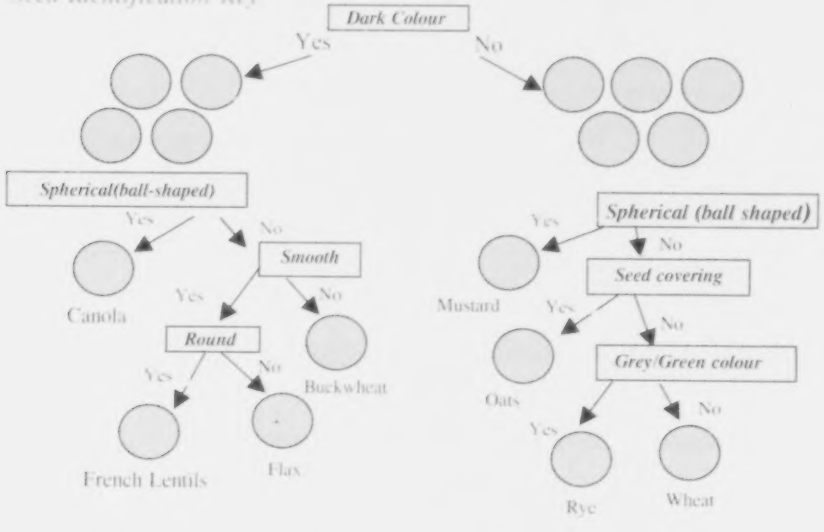


Figure 33: Grade 5 Exemplar – 'Seeds' #2 Level 5

Number	Crop	Number	Crop
1	Mustard	6	Sunflower Seeds
2	Canola	7	Flax
3	Wheat	8	Rye
4	French Lentils	9	Oats
5	Buckwheat	10	

Scoring Rubric

Level 5: *Correctly sorts seeds AND identifies an extra sample.*

Level 4: *Correctly sorts seeds AND does not identify extra sample OR 1 error in sort AND identifies extra sample.*

Level 3: *Makes 1 -2 errors – sorting or identifying extra sample.*

Level 2: *Makes 3-4 errors - sorting seeds OR identifying extra sample.*

Level 1: *Makes 5 or more errors - sorting seeds or identifying extra sample.*

Figure 34: Grade 5 Results for 'Seeds' #2

Level 5	Level 4	Level 3	Level 2	Level 1
11%	6%	23%	30%	31%

Figure 34 indicates that 40% of Grade 5 students scored Level 3 or above. This is about 20% below the provincial results for Dimension D and further below expectations (see graph on page 33).

Grade 8 students had the opportunity to respond to *'That's a Wrap'* which required them to focus on gaps in knowledge, that is, what they needed to know in order to solve a problem. For an actual image see Appendix F.

Figure 35: Grade 8 Exemplar - 'That's a Wrap' Level 5

You are in charge of gift-wrapping purchases in a large department store. Your task is to recommend to the purchasing department the sizes of boxes that should be ordered, the number of rolls of paper needed, and the yearly cost of these supplies. What do you need to know before you can make any recommendations? List relevant questions that you need answered.

1. *Approximately how many gifts will be wrapped this year? Look back into the past few years to figure out if it was steady, there was a decrease, or an increase.*
2. *In the past, how many small gifts were wrapped? How many big? Medium?*
3. *How much wrapping paper have you used in the past? Was there a shortage? Or how much did you have left over?*
4. *What has the cost been? (In the past)*
5. *Is there any way you could get supplies for a lower price than with your current supplier? Is there anything you could decrease in quantity, judging from the past few years?*
6. *Would it help costs if you put a limit on the number of wrappings per customer?*

Scoring Rubric

Level 5: *5 logical questions that demonstrate a breadth of thinking by including questions that look at past/future performance.*

Level 4: *4 logical questions that demonstrate a breadth of thinking by including questions that look at past/future performance.*
OR 3 questions that go beyond basic ones.

Level 3: *About 3 basic questions including 1 that goes beyond basic*
OR 4 basic questions only.
OR 2 that go beyond basic ones.

Level 2: *About 3 basic questions.*
OR 2 questions including one that goes beyond basic ones.

Level 1: *1 or 2 basic questions.*

Figure 36: Grade 8 Results for 'That's a Wrap'

Level 5	Level 4	Level 3	Level 2	Level 1
15%	25%	41%	13%	6%

Figure 36 indicates that 4 out of 5 Grade 8 students performed at Level 3 or higher on this question. Although about 80% achieved Level 3 or higher on this question, the overall performance of Grade 8 students in the area of constructing knowledge was 64% (see graph on page 33).

Another Dimension D question from the Grade 8 booklet was '*Connect*' #2 and #3. Students used scientific inquiry skills as they tried to discover the hidden wiring pattern of two circuit boards. Below is a Level 5 exemplar.

Figure 37: Grade 8 Exemplar - 'Connect' #2, #3 Level 5

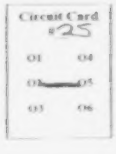
2. The brass fasteners (gold-colored buttons) are connected on the inside with copper wire. Determine how they are connected by checking all possible connections.

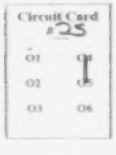
- Take the Circuit Card with the **smaller number** first.
- Enter the number in the drawing of the card.
- Now refer to the gold-coloured card in your package for instructions.

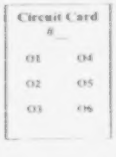
3. How are the brass fasteners connected with copper wire?
- Take Circuit Card with the **larger number** and try to determine how the brass fasteners are connected. **Show here** →

- Think: Are there any other ways that the card may be wired to get the same results? If so, show these possibilities below. You may have only one more possibility.

Be sure to enter the Card number.







Scoring Rubric

Level 5: *Discovers wiring of both cards AND finds at least one other correct way for #3 or states there is not another possibility.*

Level 4: *Discovers wiring of both cards.*

Level 3: *Discovers wiring of 1st card and has 2nd card partially correct OR 1st incorrect and 2nd correct.*

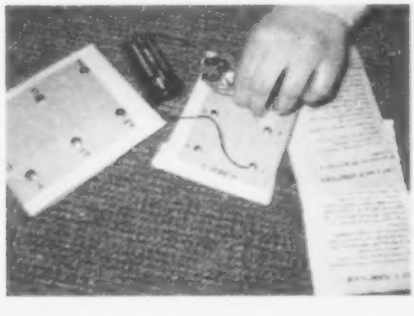
Level 2: *Discovers wiring of 1st card but does not attempt or attempts incorrectly the 2nd card OR 1st incorrect and 2nd partially correct.*

Level 1: *Does not discover wiring of either card.*

Figure 38: Grade 8 Results for 'Connect' #2, #3

Level 5	Level 4	Level 3	Level 2	Level 1
6%	31%	19%	19%	26%

Figure 38 shows that about 55% of Grade 8 students achieved Level 3 or higher on this question. This is about 10% lower than the overall performance for Dimension D (see graph on page 33).



A Grade 11 question from Dimension D was '*Who Painted It?*' #2. Students built on knowledge that was presented in question one. Figure 39 shows a Level 5 exemplar, scoring rubrics and performance results that contributed to the overall Dimension D provincial results.

Figure 39: Grade 11 Exemplar - 'Who Painted It?' #2 Level 5

Package TWO contains four art works painted by 4 different artists. One of them is by Tom Thomson. Use your knowledge of Thomson's work from question 1 to decide which one you think was painted by him. Explain why you chose the one you did and why you did not choose the other three. Complete all the boxes below. Scoring will be based on the supporting evidence that you provide.

From the North Shore *I didn't chose this because:*

- *this looks like three different paintings combined*
- *there is dots used*
- *there is a lot of shading, light is displayed brightly*
- *paint is thin, has a cleaner, look to it*
- *it is an almost cartoon painting*

Blue River *I didn't chose this because:*

- *the painting technique was done in dots*
- *the color scheme is very light and bright*
- *curvy paint strokes were used*
- *color pallet was very different from the rest*
- *blurry picture*
- *trees (foliage) isn't main focus*

Evening Sky *I think Tom Thomson painted this because:*

- *it is an outside scenery*
- *it involves a tree*
- *the painting has vivid colours, but still gloomy*
- *the paint is very thick*
- *everything is very clear cut*

Reforestation *I didn't chose this because:*

- *The painting techniques is more curvy*
- *The paint looks more flat & thin*
- *There isn't a basic foreground object*
- *The painting was more blended together*
- *Trees blended in with background*

Figure 40: Grade 11 Results for 'Who Painted It?' #2

Level 5	Level 4	Level 3	Level 2	Level 1
4%	11%	24%	44%	16%

Figure 40 indicates 39% of Grade 11 participants performed at Level 3 or higher. This is somewhat lower than the overall performance (46%) of Grade 11 students in Dimension D.

IV. Student Achievement, Attitudes and Practices

Student achievement outcomes are influenced not only by student ability, but by differences in student experiences. Schools and teachers seek to create a safe, non-threatening environment to support learning. Their goal is to engage students in active learning, providing effective instruction using a variety of instructional practices. Parents try to support their children as they learn. They may discuss academic progress and school experiences with their children, promote curiosity and a desire to learn, and help and encourage their children. Students can show a commitment and readiness to learn as they reflect on how they might enhance their skills and persist to do their best.

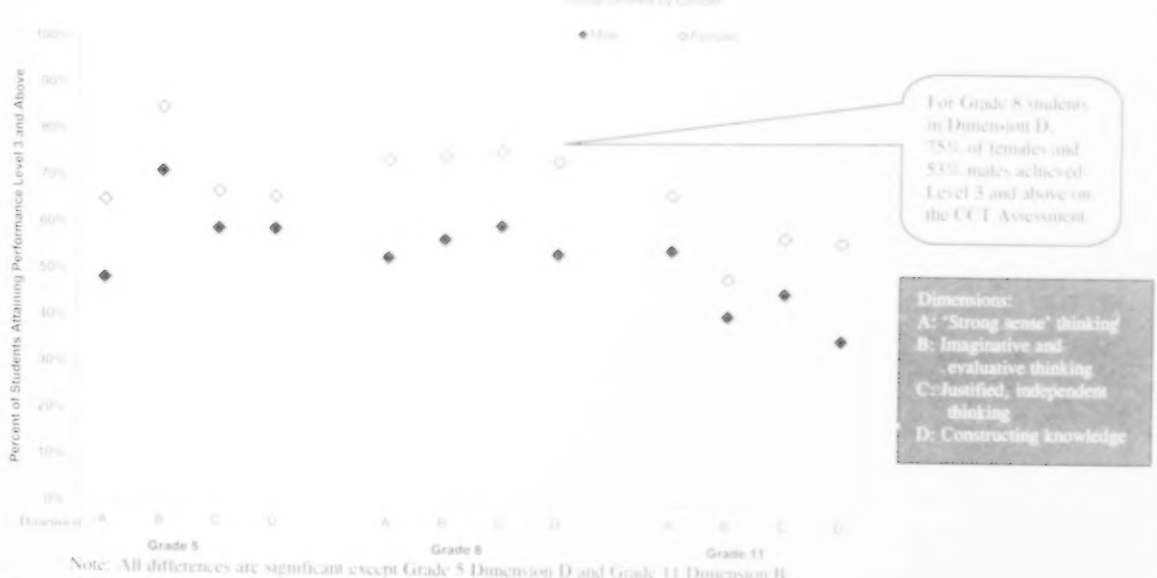
This chapter provides information on some classroom-, readiness- and support-related factors in relation to achievement. Specifically it examines:

- gender differences in student achievement;
- achievement differences and readiness-related opportunities;
- achievement differences and classroom-related opportunities; and,
- students' attitudes and practices in critical and creative thinking.

Gender Differences in Achievement

There were 792 males (48%) and 849 females (52%) who participated in the assessment. Differences were analyzed for Level 3 (adequate) and above performance. Figure 41 shows the performance level difference between male and female achievement scores in the four dimensions of critical and creative thinking. In most dimensions of the assessment, females performed significantly higher than males. Gender differences found in this assessment are similar to those found in other assessments, particularly in reading and writing where higher percentages of females than males have attained adequate or better results.

Figure 41: Gender Differences in Student Achievement


Percent of Students Attaining Performance Level 3 and Above
Grade 5
Grade 8
Grade 11
For Grade 8 students in Dimension D, 75% of females and 53% males achieved Level 3 and above on the CCT Assessment.
Dimensions:
A: 'Strong sense' thinking
B: Imaginative and evaluative thinking
C: Justified, independent thinking
D: Constructing knowledge

Note: All differences are significant except Grade 5 Dimension D and Grade 11 Dimension B.
(tested using 95% confidence intervals)

The design of the assessment allowed students the opportunity to respond to the assessment in their pre-selected, self-declared area of strength. Grade 8 and Grade 11 students had three choices, while Grade 5 students had two choices. Figure 42 outlines the choices and the percentage of males and females choosing each. More females chose the English Language Arts/Arts Education (ELA/AE) combination, while a greater percentage of males chose the Mathematics/Science (M/S) combination. Grade 11 males chose the Social Sciences (S/S) combination over the ELA/AE combination.

Figure 42: Gender Differences in Booklet Choices

Choices	Grade 5		Grade 8		Grade 11	
	males	*females*	*males*	*females*	*males*	*females*
ELA/AE	37%	71%	36%	56%	23%	57%
M/S	63%	29%	41%	25%	50%	26%
S/S	N/A	N/A	23%	19%	27%	17%

Note: The Social Sciences option was not available to Grade 5 students.

Regardless of booklet selection, dimension or grade, a greater percentage of female students than male students performed at the adequate or above level. Figure 43 uses a black square to show the dimension and grade where this difference was statistically significant.

Figure 43: Gender Differences in Performances

Choices		Grade 5	Grade 8	Grade 11
ELA/AE	***Dimension A***	■	■	■
	B		■	■
	C		■	■
	D		■	■
M/S	*Dimension A*	■	■	■
	B	■	■	■
	C	■	■	■
	D	■	■	
S/S	*Dimension A*			
	B			
	C			
	D		■	■

Note: The Social Sciences option was not available to Grade 5 students.

Differences in Performance Related to Booklet Selection

The assessment was designed to test the same types and range of skills regardless of booklet choice. However, Figure 44 shows there were significant differences in performance depending on booklet choice.

These differences in performance based on booklet selection can be attributed to at least three factors. Firstly, even though the assessment booklets were designed and field-tested to be comparable, this may not have been fully accomplished. Secondly, perhaps students who are strong critical and creative thinkers may tend toward one booklet selection over the other. Thirdly, there may be differences in applying the scoring rubric. Scoring teams were organized by booklet choices. To promote consistency, emphasis was placed largely on consistent scoring within a scoring team rather than between scoring teams. The results of the analyses of performance related to booklet choice makes it difficult to determine which factor or combination of factors is at play. Results were analyzed according to Level 3 and above performance to see whether differences were evident. The reader should take care in interpreting these findings as indicated in the footnote to Figure 44.

Figure 44: Differences in Performance by Booklet Selection

Note: The above findings are presented to inform comparability between booklet types. Caution is required in generalizing findings within subject choices due to small sub-samples resulting in large margins of error. Instead, students' critical and creative thinking should be interpreted as identified in Chapter 3.

Figure 44 shows that performance in Grade 5 was quite similar for the booklet choices. Results show Grade 8 and 11 performance varied depending on booklet selection. A number of these differences are statistically significant.

Selected Findings Related to Dispositions

Students were presented with a number of statements related to critical and creative thinking dispositions and were asked to indicate the frequency of their occurrence. Figure 45 summarizes some of this data.

Figure 45: Findings Related to Dispositions

Statement	*Percentage of students that indicated 'almost always' or 'usually'*		
	Grade 5	***Grade 8***	***Grade 11***
I like to ask many questions.	52%	44%	43%
I can learn much more than I already know.	77%	79%	82%
I am easily distracted.	45%	42%	38%
I respect the views of others even if they are different than mine.	80%	74%	73%
If given a choice, I would pick a challenging activity over an easy one.	57%	43%	35%
I panic when I have to deal with something really complicated.	19%	19%	17%
I prefer tests that require thinking rather than the memorization of facts.	47%	50%	55%
Number of Participating Students	706	614	558

- Grade 11 students tend to be distracted somewhat less frequently than Grade 5 or 8 students, however, they are less likely than the younger students to take the opportunity of a challenging activity over an easy one.

Students' Metacognitive Skills and Practices Related to Achievement

In Chapter 2, page 7, a definition of metacognition and description of how it was measured in this assessment were given. When viewing achievement related to any factor, the cause/effect direction is often unknown. For instance, Figure 46 indicates the group of students with high metacognitive skills and practices performed higher than the group with lower metacognitive skills and practices. It may be that possessing these qualities leads to higher critical and creative thinking skills or that proficient critical and creative thinkers are more apt to develop these qualities.

Figure 46: Achievement Differences and Metacognitive Skills and Practices

Number of student responses for designated levels of metacognition

Level of metacognition	Grade 5	Grade 8	Grade 11
5	50	16	14
3 and above	432	326	282
below 3	254	277	255

Dimensions:
A: 'Strong sense' thinking
B: Imaginative and evaluative thinking
C: Justified, independent thinking
D: Constructing knowledge

Note: All results are statistically significant between the two groups.

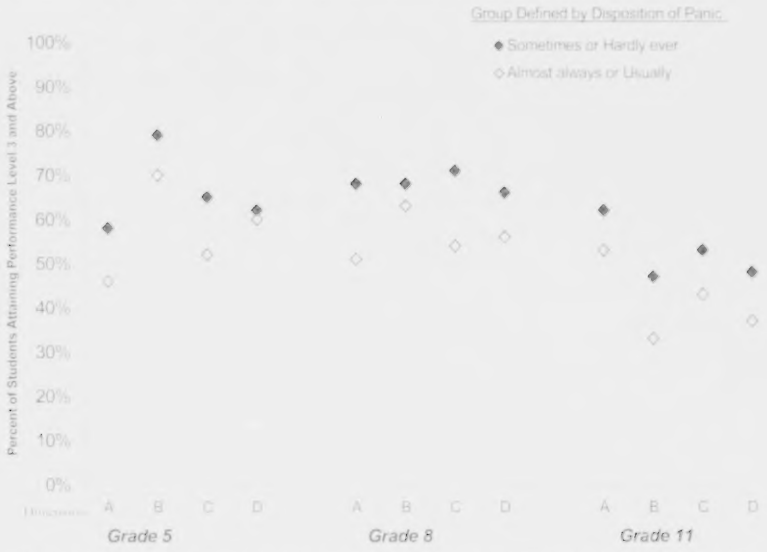
- As the table on the right indicates, just over 60% of Grade 5 students and just over 50% of Grade 8 and 11 students were deemed to be Level 3 or higher metacognitive thinkers according to the rubric.
- About 7% of Grade 5 students, and 3% of Grade 8 and 11 students were considered to be Level 5 metacognitive thinkers based on the rubric.
- Figure 46 indicates that students who exhibited characteristics of metacognitive skills and practices (as outlined in the rubric, Ch. 2, page 8) at Level 3 or above achieved significantly higher in all dimensions of this assessment.

Student Achievement Differences and Dispositions for CCT

Various dispositions are associated with students' abilities to think creatively and critically when solving authentic or subject-related problems. Students were asked to

give their opinion on related behaviours such as persistence, open-mindedness, risk-taking and curiosity. Students responded to the frequency (almost always, usually, sometimes, hardly ever) that they engage in such behaviours. Student responses were examined in relation to their achievement on the CCT assessment. Figures 47 and 48 show the results of comparisons between two student dispositions and performance.

Figure 47: Achievement Differences and Response to "I panic when I have to deal with something really complicated."



Note: All differences between the two groups are significant except for Grade 5 D, Grade 8 B and D, and Grade 11 A and C.

Number of Student Responses

	Grade		
Frequency	5	8	11
Hardly ever	287	175	159
Sometimes	281	322	299
Usually	90	88	77
Almost always	43	26	20

Dimensions:
A: 'Strong sense' thinking
B: Imaginative and evaluative thinking
C: Justified, independent thinking
D: Constructing knowledge

- The table on the right indicates that just over 80% of Grade 5, 8 and 11 students responded that they hardly ever or sometimes panic when they have to deal with something really complicated; less than 20% of each grade indicated they usually or almost always panic.
- Figure 47 shows that there is a tendency for students who indicated they sometimes or hardly ever panic when confronted with complicated situations to perform significantly higher than those students who usually or almost always panic under these situations. This is particularly evident in Dimensions A and C for Grade 5 and Grade 8.
- In most dimensions, a similar pattern emerged for males and females. Interestingly, in Grade 5 Dimension B (imaginative and evaluative thinking), the relationship between the tendency to panic and performance played out differently for the genders.
  - Grade 5 males who indicated they usually or almost always panic when they have to deal with something really complicated scored significantly lower

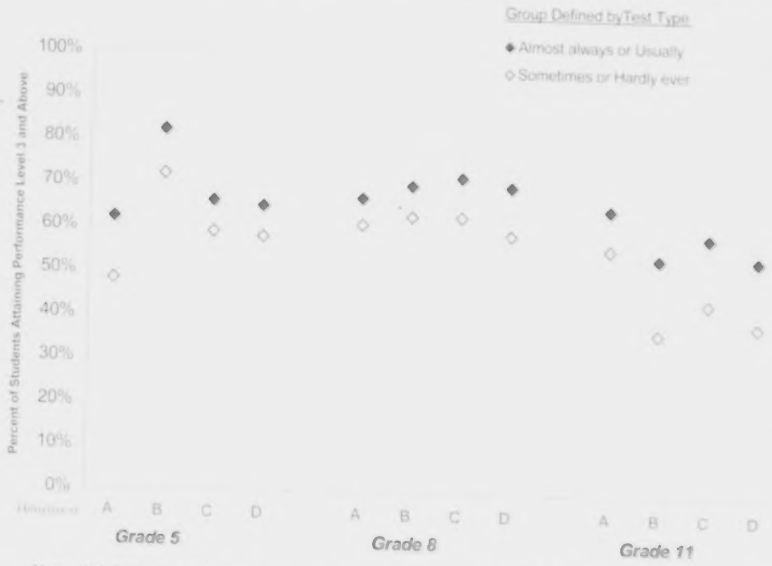
than males who sometimes or hardly ever panic. 47% of males who almost always or usually panic achieved Level 3 or higher while 75% of males who sometimes or hardly ever panic achieved Level 3 or higher.

- Grade 5 females who indicated they almost always or usually panic scored significantly higher than females who sometimes or hardly ever panic. 90% of Grade 5 females who panic scored Level 3 or higher while 84% of females who seldom panic scored Level 3 and above.

- For the other grades in the various dimensions, the patterns for males and females paralleled those of the whole population.

One other statement that was considered by students was their preference for tests that require thinking, not just memorizing facts. The results in Figure 48, show that students who indicated a preference for 'thinking tests' achieved significantly higher in most dimensions of this assessment than those who preferred 'factual tests'.

Figure 48: Achievement Differences and Response to "I prefer tests that require thinking rather than the memorization of facts."



Number of Student Responses

	Grade		
Frequency	5	8	11
Hardly ever	113	132	117
Sometimes	213	174	184
Usually	202	167	132
Almost always	172	138	119

Dimensions:
A: 'Strong sense' thinking
B: Imaginative and evaluative thinking
C: Justified, independent thinking
D: Constructing knowledge

Note: All differences between the two groups are significant except for Grade 5 C and D and Grade 8 A and B.

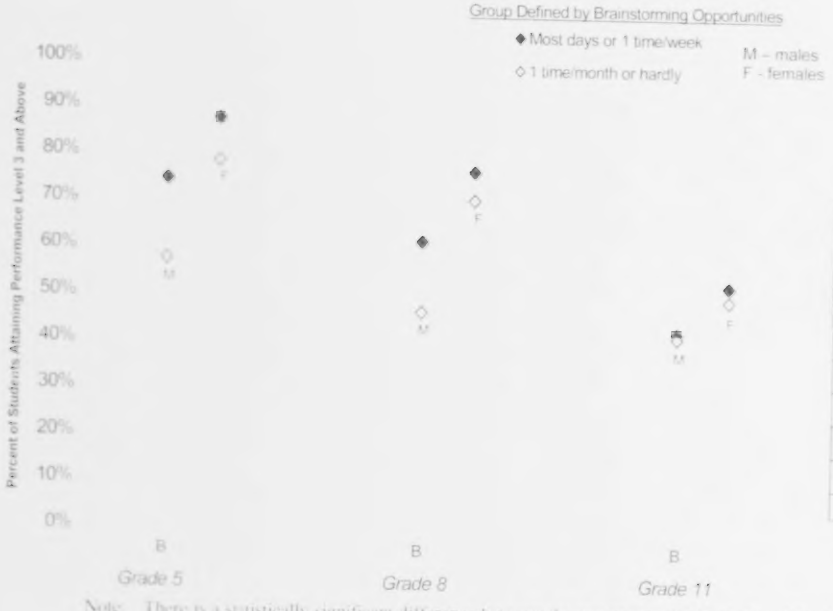
- About half of the students from each grade indicated they usually or almost always prefer tests that require thinking rather than those that require the memorization of facts (see chart on right).

- Figure 48 shows that in most dimensions, students who preferred tests that require thinking performed higher than those who preferred tests that required memorization.

Student Achievement Related to Frequency of Brainstorming Opportunities

The generation of ideas that is often accomplished by brainstorming sessions is a factor in the development of critical and creative thinking. Fluency in the production of ideas can lead to the development of informed decisions and creative problem solving. In Dimension B, students were given opportunities to generate ideas and evaluate them. Figure 49 relates students' opportunities at school to brainstorm and their achievement in this dimension (Dimension B assessed a number of activities that required fluency and flexibility).

Figure 49: Achievement Differences in Imaginative and Evaluative Thinking Related to Opportunities for Brainstorming



Number of Student Responses

Grade and Gender	Most days or 1 time/ week	1 time/ month or hardly ever
5 males	241	61
5 females	268	54
8 males	192	57
8 females	238	46
11 males	159	71
11 females	181	48

Note: There is a statistically significant difference between the two groups for Grade 5 and Grade 8 males.

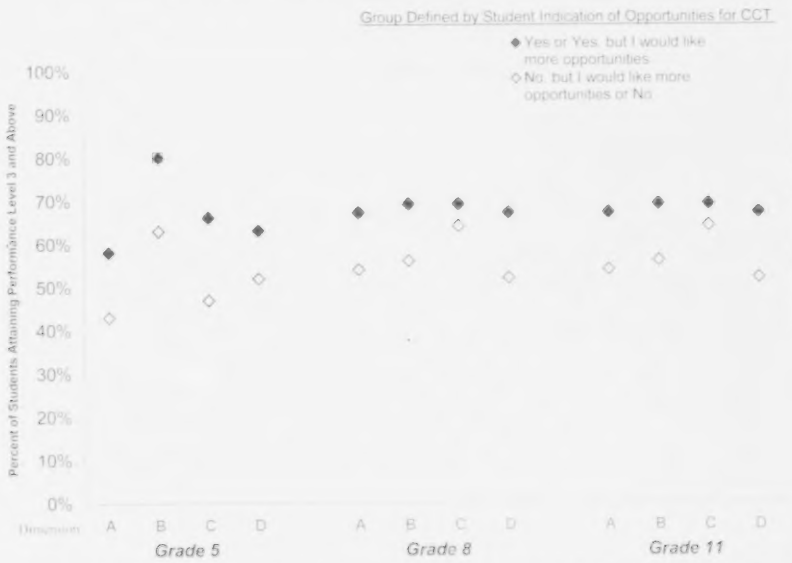
- The chart on the right shows about 80% of students in each grade have the opportunity to brainstorm at least once a week.
- 50% of Grade 5 students, 43% of Grade 8 students, and 34% of Grade 11 students reported the opportunity for brainstorming most days.
- Figure 49 indicates Grade 5 and 8 students who indicated they have opportunities for brainstorming at least once a week scored significantly higher in Dimension B of this assessment than students who have fewer opportunities.

- Figure 49 shows that females who indicated a higher frequency of brainstorming opportunities tend to perform higher in this dimension than males who indicated a higher frequency of brainstorming opportunities.

Student Achievement Related to Opportunities for CCT

Students responded to their satisfaction with opportunities they have at school for critical and creative thinking. In almost all dimensions, students who indicated they are satisfied with the opportunities they have for critical and creative thinking did significantly better than students who indicated they do not have sufficient opportunities.

Figure 50: Achievement Differences and Student Opportunities for Critical and Creative Thinking



Number of responses

Grade and Gender	Yes	Yes, but would like more	No, would like more	No
5 males	163	87	15	24
5 females	162	116	13	17
8 males	134	78	24	8
8 females	145	105	23	9
11 males	120	55	28	19
11 females	112	87	25	5

Dimensions:
A: 'Strong sense' thinking
B: Imaginative and evaluative thinking
C: Justified, independent thinking
D: Constructing knowledge

Note: All differences between the two groups are significant except for Grade 5 D, Grade 8 C and Grade 11 C.

- The chart on the right shows that 87% of Grade 5 students, 84% of Grade 8 students, and 79% of Grade 11 students indicated they were satisfied with the opportunities they have at school for critical and creative thinking.
- Figure 50 shows, for example, that in Grade 5 Dimension A 58% of students satisfied with opportunities for critical and creative thinking performed at Level 3 and above on this assessment while 42%of students dissatisfied with opportunities performed at Level 3 and above.

Selected Classroom Practice Findings

Students were presented with a number of statements that describe aspects of critical and creative thinking and were asked to indicate the frequency that they have the opportunity to do them at school. Grade 11 results were mostly from students in regular English Language Arts classes. Figure 51 summarizes some of this data.

Figure 51: Classroom Practices as Declared by Students

Statement	*Percentage of students that indicated 'most days' or '1 time/week'*		
	Grade 5	*Grade 8*	*Grade 11*
Think about the quality of work you did on an assignment	83%	78%	73%
Have choices in assignments (e.g. write a story, poem, song about ...)	63%	45%	53%
Use your imagination to do some creative work	85%	73%	61%
Give reasons to support an answer even if it is not the one 'right' answer	70%	67%	62%
Work in pairs or small groups	74%	73%	76%
Number of Participating Students	706	614	558

- At least three-quarters of the students in all three grades of this assessment reflect on their quality of work at least once a week.
- More Grade 5 students have opportunity to use their imagination than Grade 8 and 11 students.

Teacher Attitudes and Practices

Teachers responded to a number of questionnaire items related to critical and creative thinking. Grade 11 responses were mostly from English Language Arts teachers. Figure 52 summarizes some of the data.

Figure 52: Teacher Attitudes and Practices

Statement *Students have the opportunity to:*	*Percentage of teachers that indicated 'most days' or '1 time/week'*		
	Grade 5	*Grade 8*	*Grade 11*
Brainstorm ideas as a large or small group	91%	87%	77%
Work through "unusual' problems or situations	85%	87%	84%
Reflect on their thinking	79%	77%	71%
Make choices in the weighting of course evaluation activities	31%	19%	29%
Seek fair-minded decisions for the good of society	70%	61%	67%
Work in pairs or small groups to explore ideas and present reasoned solutions	85%	87%	81%
Number of Participating Teachers	35	33	33

Figure 52 shows:

- Over three-quarters of the teachers in the three grades provide opportunity in their classes for brainstorming activities at least once a week.
- About three-quarters of the teachers provide reflection time for their students at least once a week.
- About one in four teachers provide opportunities for choices in the weighting of course evaluation activities.

Teachers' Instructional Approaches

Teachers use a variety of instructional approaches and assessment techniques in the classes they teach. Teachers were given five statements that describe different approaches and were asked to select one that most closely matched their overall classroom approach to engaging students in learning. The five statements and the frequency of teacher responses are outlined in the chart below. Figure 53 shows that most teachers use instructional approaches reflected in statements that involve the emphasis on acquiring facts and understanding the knowledge presented (Statements 1 and 2).

Figure 53: Teachers' Instructional Approaches

Statement describing approaches to teaching and learning	Number of teacher responses		
	Grade 5	Grade 8	Grade 11
1. *Transmit facts or guide students to facts and information about topics so that students will be able to recall this knowledge.*	16	14	10
2. *Develop a good understanding of the knowledge presented so that students will be able to explain the whats, hows and some whys of what they have learned.*	13	13	14
3. *Arouse students' curiosity in order that they may gain a further knowledge base about the topics studied so that students will search areas of interest-related topics beyond what is studied in class to extend their understanding.*	3	4	6
4. *Invite students to examine and question assumptions so that students will form and test hypotheses and reformat their concept map.*	0	0	1
5. *Challenge students to evaluate criteria for decision-making purposes so that students will make decisions and formulate creative solutions to issues/problems that can hold up to critical review.*	0	0	0

Figure 53 shows that most teachers reported their instructional approach was best represented by statements describing emphasis on facts and knowledge, and a good understanding of the knowledge. Fewer teachers tended to approach instruction designed to arouse curiosity, examine and question assumptions, and challenge students to formulate creative solutions to complex problems.

Teacher Assessment of Students' Creativity Related to Achievement

This assessment provided a snapshot of students' performance in critical and creative thinking. In the classroom, teachers have multiple opportunities to view student performance. Teachers may assess students' knowledge, skills and aspects of critical and creative processes in a variety of ways. We asked participating teachers to review the different levels of creativity as described in Figure 54 and assign a level that best characterized each student in their classroom. Figure 55 outlines the results for each of the three grades.

Figure 54: Creative Thinking Rubric

Level 5	Level 4	Level 3	Level 2	Level 1
←		Is willing to take risks		Takes limited risks
Tolerates ambiguity and uncertainty	Usually tolerates uncertainty		←	
Persists to get quality as well as quantity	Usually persists to get quality and quantity	Often goes with one of a few ideas	Generally goes with the first idea; often relies on the ideas of others	Usually seeks the ideas of others
Elaborates on ideas and often creates something new and different yet relevant	Elaborates on ideas and may create something new and different yet relevant	Assignments, projects, etc. show some elaboration	Assignments, projects, etc. show limited elaboration	Assignments, projects, etc. show bare minimum requirements
Consistently shows flexibility, makes unusual associations between remote ideas (forced associations)	Shows some flexibility in thinking, makes unusual associations between remote ideas	Occasionally makes unusual associations between remote ideas		
Consistently generates many original responses	Generates some original responses	Occasionally generates an original response		
←	Anticipates problems and asks questions	Makes guesses and hypotheses that are relevant to the topic	Makes guesses and hypotheses that are irrelevant to the topic	
←	Generates many ideas for complex topics	Generates some ideas for complex topics	Generates many ideas for simple, common topics	Shows some fluency in generating some ideas for simple, common topics
←		Visualizes mentally	Finds visualizing difficult	
←	Displays a salient curiosity that pushes one's thinking to create/do something about it	←	Displays curiosity about the why and way of things	

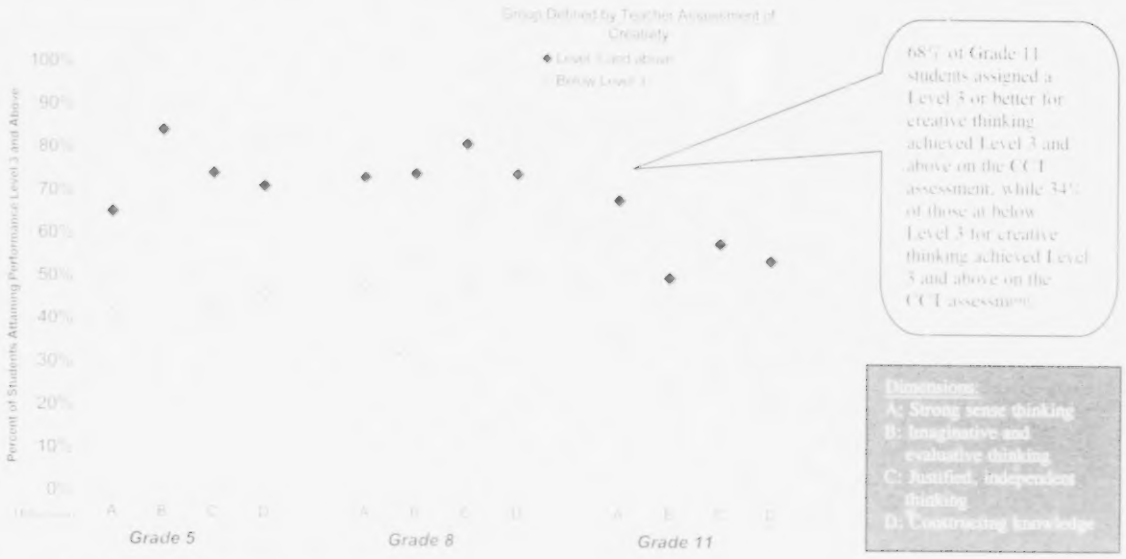
Figure 55: Students' Creative Thinking Level as Assessed by Classroom Teachers

	Level 5	Level 4	Level 3	Level 2	Level 1
Grade 5	5%	23%	36%	25%	11%
Grade 8	8%	23%	35%	26%	8%
Grade 11	13%	26%	36%	16%	9%

Figure 55 shows the distribution of levels of creativity as assigned by classroom teachers.

The results of a comparison of student achievement on this assessment with the creative thinking level assigned by teachers is shown in Figure 56.

Figure 56: Teacher Assessed Creative Thinking and Results on the CCT Assessment



Note: All results are statistically significant.

- Figure 56 shows that students who were characterized as Level 3 or higher creative thinkers by their teacher(s) scored significantly higher on this assessment than those students ranked lower on the rubric.

Figure 55: Students' Creative Thinking Level as Assessed by Classroom Teachers

	Level 5	Level 4	Level 3	Level 2	Level 1
Grade 5	5%	23%	36%	25%	11%
Grade 8	8%	23%	35%	26%	8%
Grade 11	13%	26%	36%	16%	9%

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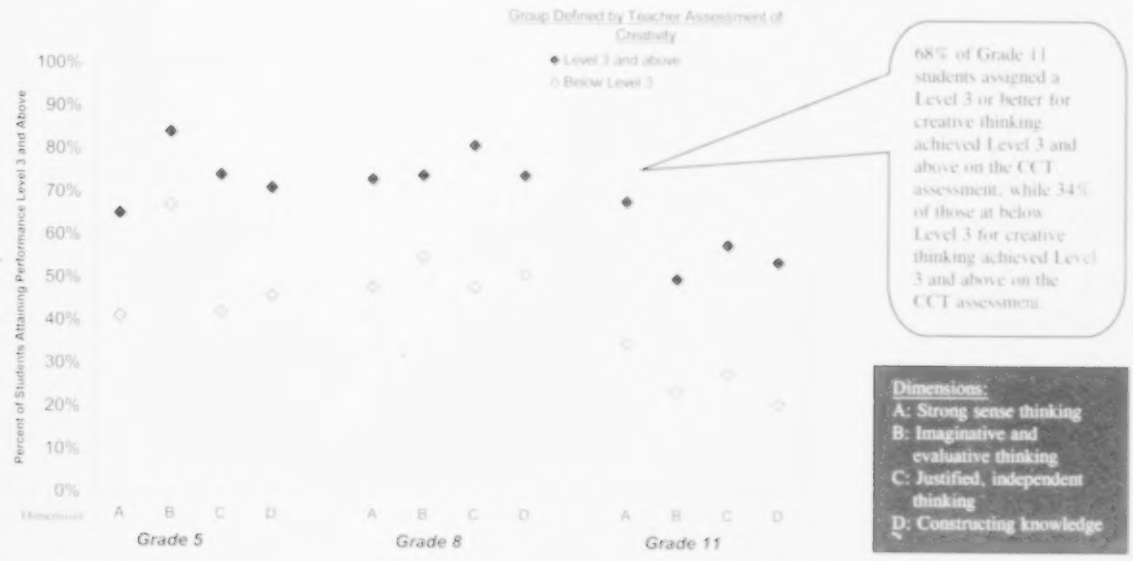

Group Defined by Teacher Assessment of Creativity
Level 3 and above
Below Level 3
Percent of Students Attaining Performance Level 3 and Above
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
A B C D
Grade 5
Grade 8
Grade 11
68% of Grade 11 students assigned a Level 3 or better for creative thinking achieved Level 3 and above on the CCT assessment, while 34% of those at below Level 3 for creative thinking achieved Level 3 and above on the CCT assessment.
Dimensions:
A: Strong sense thinking
B: Imaginative and evaluative thinking
C: Justified, independent thinking
D: Constructing knowledge

Note: All results are statistically significant.

- Figure 56 shows that students who were characterized as Level 3 or higher creative thinkers by their teacher(s) scored significantly higher on this assessment than those students ranked lower on the rubric.

V. Conclusions and Next Steps

The 2002 Provincial Learning Assessment of Critical and Creative Thinking revealed a number of insights with respect to Saskatchewan students' opportunity-to-learn and performance outcomes within this Common Essential Learning. Specifically, the findings showed:

- mixed results at the adequate (satisfactory) level. Grade 8 students met expectations in all dimensions except imaginative and evaluative thinking. Grade 5 students met expectations in two dimensions, imaginative and evaluative thinking, and justified, independent thinking. Grade 11 students only met expectations in 'strong sense' thinking.
- students need some improvement in critical and creative thinking at the higher levels particularly in the dimensions of 'strong-sense' thinking, and imaginative and evaluative thinking;
- students are approaching expectations at the higher levels in the dimensions of justified, independent thinking and constructing knowledge; and,
- a strong relationship exists between students' metacognitive skills and practices and their ability to think critically and creatively.

Challenges lie ahead to facilitate student learning in many aspects of critical and creative thinking. Responsibility for this is shared by students, teachers, parents and all education partners.

Addressing these challenges begins with the awareness and discussion of them. Concerted and dedicated efforts are required by many to bring curricula initiatives to life in the classroom. Students must be given the opportunity to engage in meaningful learning activities, which effectively utilize higher level thinking. This includes the opportunity to become metacognitive thinkers by reflecting on their work, setting realistic goals and monitoring progress in meeting them. Using rubrics and samples of performance can help students set goals, monitor progress towards these goals, and adjust actions, thereby rising to higher levels of achievement.

As we prepare students for the complex world, we must equip them with the best tools to be informed, fair-minded decision-makers. We want to make good thinking an educational goal for all students.

Appendix A: Sample Size and Profile

Participating schools were randomly selected from the list of provincial schools teaching the Saskatchewan curriculum with Grade 5, 8 and 11 students. Selection criteria produced a random sample that proportionally represented rural, urban and northern schools. Schools of varying population were represented. A grade population of at least seven students was required to qualify a school for possible selection.

Criteria excluded selection of:

- schools in *conseil scolaires francophone;*
- schools that participated in the national 2002 SAIP Writing Assessment; and,
- schools that frequently participated in previous provincial assessments.

Each selected school participated in two, one-hour parts of the 2002 *Provincial Critical and Creative Thinking Assessment*. Schools with more than one class at the designated grade level selected one of the classes to participate.

Students enrolled in regular English Language Arts programs were asked to participate. The purpose of using English Language Arts classrooms was to give the best representation of a typical student at that grade level, since all students enroll in English Language Arts classes.

Students in modified programs, where foundational objectives of the course were altered, did not participate. In other words, students in special resource room programs, International Baccalaureate (I.B.) programs, or in locally-developed courses were not assessed. Regular program students requiring adaptations such as Braille, large-print, or scribes participated.

Figure 57 details the sample profile. The sample size permits reliable generalizations of results to the entire Saskatchewan student population sampled for the three grades.

Figure 57: School and Student Participation in the Assessment

Participation	*Grade 5*	*Grade 8*	*Grade 11*
Total Schools Registered in Sample	35	34	33
Total Schools Participating in Assessment	35	33	33
Participation Rate of Schools	100%	97.0%	100%
Total Students Registered in Sample	707	623	562
Total Students Participating in Assessment	706	614	558
Participation Rate of Students	99.9%	98.6%	99.3%

Appendix B: Administrative Methods and Procedures

Selected schools and their school divisions were contacted in November 2001. An information bulletin and web site information were available describing the nature and scope of the assessment. Each school chose a coordinator to administer and return assessment materials. Sample questions with scoring rubrics and instructions were included for all participating classes in preparation for this assessment.

In February 2002, the *Handbook for School Coordinators*, student booklets, performance-based materials, and student and teacher questionnaires were sent to the school coordinators. In addition, a video, for both student and teacher use, outlining the framework and type of tasks was included in the package. The video and the *Handbook for School Coordinators* were intended to:

- ensure the security of assessment instruments;
- prepare students for the assessment;
- allow for adaptations such as large-print forms, scribes or other special needs;
- provide instructions for the completion of questionnaires and assessment forms;
- ensure consistent administration of the tests related to time, breaks, independent student work, and the type of assistance teachers could give; and,
- ensure student work was properly handled to guarantee student, teacher, school and school division anonymity.

The assessment was administered between March 15th and April 15th, 2002. School coordinators returned all test booklets for scoring, but kept the various materials used for some questions for future use.

Appendix C: Scoring and Data Analysis

In July 2002, forty teachers and consultants, working in seven supervised teams, engaged in scoring student work. Two teams scored Grade 5 booklets: one team scored the English Language Arts/ Arts Education booklets and the other team scored the Mathematics/Science booklets. Similarly, teams scored Grade 8 and Grade 11 booklets. These teachers were selected to reflect the diverse school situations in the province, including urban, rural and northern locations.

The scorers assessed all questions in the student booklets. They analytically scored all questions within the four dimensions of the assessment and then assigned an overall score to each dimension, based on a five-level rubric. To facilitate fair and reliable scoring, the following procedures were used for each item scored.

- Scorers studied the criteria that defined each of the five achievement levels. They examined the tests to see how the items reflected the criteria.
- Examples of student work (exemplars) showing proficiency at each achievement level were chosen and used as references for scorers.
- Training sessions using the criteria, exemplars and practice booklets developed consistency for judging student work.
- Scoring leaders continually monitored the process for consistency and provided adjudication when necessary.
- Scorers were asked to guard against bias that may develop due to unattractive handwriting, incorrect grammar and poor spelling.

Students received a minimum score of Level 1 unless a question was not attempted. When all questions in the dimension were scored, scorers then assigned an overall score for the dimension. Certain criteria regarding the number of questions completed had to be met in order for an overall score to be assigned. After scoring all student booklets for one dimension, scorers were trained to score the next dimension. The quantity of questions in Dimension B necessitated two separate training sessions.

About 20% of the booklets were scored twice for Dimensions A, C, and D and all booklets were scored twice for Dimension B. Scorers coded achievement levels on separate data entry sheets. Consequently, re-scoring of the booklet and scoring of other elements of the student's work were not prejudiced by the first issued score. If the scores differed, one of the scores

was randomly selected. Overall, about 65% of scores matched for Grades 5, 8, and 11 and over 97% of the time scores agreed within one level.

All information from the coded scoring sheets was entered into a statistical database. Student questionnaire and teacher questionnaire data were also entered into the database.

Item and assessment analyses were performed for each questionnaire and assessment form for the four dimensions of critical and creative thinking. Frequency distributions, cross-tabulations and tests for significant differences were done for some assessment and questionnaire variables.

Appendix D: Standard-Setting Procedures

Standard-setting involves setting provincial standards and expectations for student opportunity-to-learn and achievement outcomes for a specific set of tests. Standards or expectations are not fixed or static. Expectations will vary according to the complexity of the test questions and tasks, the criteria used for scoring the test, the attributes of the student population being tested, and the composition of the committee setting the standards.

The standards serve to place an interpretive framework around the data, to highlight the strengths and weaknesses in student achievement, and allow the public to confidently judge the adequacy of the assessment results. Such standards have been established for previous provincial assessments as well as for national reading, writing, science and mathematics assessments. The standards remain in place for discussion and comparison with the results until new standards are set to accompany the next cycle in the assessment.

Who set the standards?

Thirty-four stakeholder representatives sat as three panels of judges to set standards. A separate panel set achievement and opportunity-to-learn standards for each of the three grades participating. Stakeholders that participated represented:

- Saskatchewan Teachers' Federation;
- Saskatchewan School Trustees Association;
- League of Educational Administrators, Directors, and Superintendents;
- Saskatchewan Association of School Councils (parents and students);
- Saskatchewan Chamber of Commerce;
- Saskatchewan Learning;
- University of Saskatchewan, College of Education;
- University of Regina, Faculty of Education; and,
- Saskatchewan Indian Federated College.

In what areas were standards and expectations set?

By the design of the assessment, standards for achievement outcomes were established at Level 3. This level was deemed to be satisfactory or adequate performance at a particular grade. Firstly, panels set achievement expectations by realistically considering the percentage of students they would expect to attain Levels 1 through 5 for the overall achievement in Grades 5, 8, and 11 for each of the four dimensions. Next, they set standards of sufficient and excellent opportunity for one readiness-related opportunity-to-learn (OTL) element - metacognitive skills and practices. Thirdly, the panels set expectations for the sufficient and excellent standards for the OTL element.

What process was used to set the standards and expectations?

Panelists set achievement expectations and opportunity-to-learn standards using a three-round voting process. Panelists:

- reviewed test instruments, criteria, student exemplars or background documents to better understand the context of the assessment;
- made initial judgments for the question using private ballots;
- discussed differences in their judgments after viewing the voting-distribution pattern of the panel;
- made second-round, private judgments for the same question considering elements of the discussion;
- viewed a comparison of their second-round voting pattern with actual student outcomes or practices and discussed factors that may explain any differences; and,
- made their final third-round, private judgments for the same question.

The average of the panelists' third round judgement became the standard for that particular dimension. The median of the panelists' votes became the expectation. The process was repeated for the next dimension or opportunity-to-learn element.

Appendix E: Critical and Creative Thinking Rubrics

For this assessment, student achievement was classified into one of five levels. Below are *some* characteristics and practices of students achieving the different levels for each dimension of the critical and creative thinking assessment. The criteria are consistent with the objectives outlined in the Common Essential Learnings document. Not every characteristic needs to be present to identify a student at a given level.

DIMENSION A 'Strong-sense' thinking

	Intellectual integrity	Intellectual empathy	Impact on society
Level 5	Consistently takes a fair-minded*, insightful position for the circumstances **and** remains consistent in one's views.	Consistently expresses one's own feelings and considers with sensitivity the viewpoints of others.	Consistently examines alternatives that show diverse but relevant ways of looking at the situation, provides careful and reasoned qualifications of logical consequences and states a decision that reflects impact on society as a whole (is in best interest of all involved).
Level 4	Takes a fair-minded position for the circumstance and remains somewhat consistent in one's views.	Expresses one's own feelings and encourages respect for the feelings, knowledge and abilities of others.	Examines alternatives that show some diversity in looking at the situation, provides accurate qualifications of consequences and states a decision that reflects impact on society (is in best interest of most involved).
Level 3	Takes a fair-minded position for the circumstances.	Expresses one's own feelings and infers the feelings of others.	Examines alternatives that are mostly predictable, provides adequate qualifications of consequences, and decision reflects some impact on society (is in best interest of a few).
Level 2	Takes a position that the circumstances do not warrant and that is self-centered.	Explores one's own feelings and what caused them but does little to encourage respect for others.	Examines alternatives that are highly predictable and self-centered, provides limited qualifications of consequences, and decision is basically self-centered.
Level 1	Takes a position that is inappropriate for the circumstances.	Explores one's own feelings with no respect for the feelings of others.	Alternatives are self-centered or not given, qualifications of consequences are illogical or misunderstood, or decision is self-centered or not given.

*fair-minded – reasonable, most beneficial to society

DIMENSION B Imaginative and evaluative thinking

	Fluency, flexibility, originality	Compares and contrasts	Discovers relationships	Generates and evaluates alternatives	Displays creativity
Level 5	Consistently generates numerous responses on an unfamiliar topic, some of which are very insightful/novel (Wow). The responses show breadth and depth of thinking.	Accurately assesses similarities and differences among identified characteristics and provides inferences that were not explicitly requested in the task description. Draws reasonable and insightful conclusions. Criteria provide breadth and depth of useful ways of looking at the items.	Draws clear and logical links between the information or observations and the interpretations made from them. May make a very accurate and insightful discovery. Rationale for the interpretations shows a thoughtful and accurate attention to the process.	Explores alternatives and clearly explains the strengths and weaknesses of each alternative and how it will affect the outcome to the task. The alternatives illustrate diverse but valuable ways of looking at the situation.	Develops a final product or process that meets criteria established at a demanding level of quality. The process or product reflects creativity* and establishes a model for creative work of high quality.
Level 4	Generates adequate responses on an unfamiliar topic (at least one is novel) and numerous responses on a familiar topic. The responses show breadth of thinking.	Accurately assesses the major similarities and differences among the identified characteristics. Draws reasonable conclusions. Criteria focuses on some useful ways of looking at the items, some at unusual depth.	Draws logical links between the selected information or observations and interpretations made from them. May make an accurate, insightful discovery. Rationale for the interpretations shows attention to the process.	Generates alternative ways of approaching the task and explains the strengths and weaknesses of each and how the task would be affected by each. Some alternatives show originality in the approach to the task.	Develops a final product or process that meets criteria at a proficient level of quality and reflects some creativity. The process or product successfully serves the purpose for which it was designed.
Level 3	Generates an adequate number of responses on an unfamiliar topic OR numerous responses on a familiar topic OR suggests at least one novel idea.	Assesses the major similarities and differences among identified characteristics. Draws obvious conclusions. Criteria focuses on the most obvious ways or an idea of unusual depth.	Draws at least one logical link between the information and interpretation or makes an accurate, insightful discovery. Rationale is complete and shows surface level thinking.	Generates alternative ways of approaching the task and explains the strengths and weaknesses of each and how the task would be affected by some alternatives.	Develops a final product or process that meets acceptable standards but reflects little creativity.
Level 2	Generates limited responses on an unfamiliar topic OR adequate number of responses on a familiar topic.	Provides a partial comparison of the items. Draws incomplete or incorrect conclusions. Criteria focuses on obvious way.	Draws erroneous links between the information and interpretation. Rationale lacks logic and is limited.	Considers few alternative ways of viewing the situation; those identified are highly predictable, strengths and weaknesses are not clearly explained.	Revises the process or product until it meets minimum standards.
Level 1	Generates limited responses on an unfamiliar or familiar topic. No novel ideas.	Provides characteristics that are trivial or do not address the comparison. Draws an inappropriate conclusion. Criteria lacks relevance to the task.	Draws an erroneous link between selected information and interpretation. Is unable to describe the rationale behind the conclusions.	Applies conventional approaches to the situation even when results are clearly not satisfactory.	Finishes creating a product or process before it has met minimum standards.

*creativity = original, unique ideas, a freshness to the situation

DIMENSION C Justified, independent thinking

	Develops own perspective with support	Provides evidence for a conclusion	Examines various perspective	Reflective thinking
Level 5	Consistently demonstrates the ability to think deeply* about topics and develops one's own perspective.	Presents a clear and accurate treatment of all available evidence to support all aspects of the conclusion given.	Considers alternate views impartially and rationally.	Provides a detailed analysis of thoughts affecting performance.
Level 4	Demonstrates the ability to think about some topics and to develop one's own perspective.	Presents most evidence to support all aspects of a conclusion.	Considers alternate views.	Provides an analysis of thoughts affecting performance.
Level 3	Demonstrates the ability to think about some topics and begin to form one's own perspective.	Presents evidence for conclusion but does not address all necessary aspects.	Makes a concerted effort to consider alternative views.	Provides adequate ideas on one's own thinking and how it affects performance.
Level 2	Demonstrates limited thinking ability and weak views.	Presents limited support for conclusion.	Makes limited effort to consider alternate views.	Provides limited ideas on one's own thinking.
Level 1	Demonstrates very minimal thinking ability and no formulation of opinions.	Presents no support for conclusion.	Makes no effort to understand other viewpoints.	Provides confusing or no ideas on one's own thinking.

* think deeply – provide ideas that are well beyond grade level expectation, or profound, or insightful

DIMENSION D Constructing knowledge

	Knowledge construction	Knowledge gaps	Perceptual abilities
Level 5	Consistently makes important connections that are logical, very accurate and thoughtful; some are insightful.	Focuses on gaps in knowledge. Identifies completely what relevant information still needs to be known before reaching a conclusion.	Makes detailed, careful and accurate observations that provide insight into the task.
Level 4	Makes connections that are logical, accurate and thoughtful.	Focuses on gaps in knowledge. Identifies most aspects of what needs to be known before reaching a conclusion.	Makes accurate observations that provide some insight into the task.
Level 3	Makes connections that are logical, accurate, and address the crucial issues; may lack some detail.	Identifies major aspects of what still needs to be known before reaching a conclusion.	Makes observations that are predictable or makes one insightful observation.
Level 2	Makes connections that are usually accurate and sporadically address the crucial issues.	Identifies some aspects of what still needs to be known before reaching a conclusion.	Makes highly predictable observations.
Level 1	Makes connections that lack reasoning or makes no connection.	Identifies limited aspects of what still needs to be known before reaching a conclusion.	Makes observations that lack accuracy or makes no observation.

Appendix F: Actual Student Samples

Grade 8 Exemplar 'Discman' Level 5

You are in grade 5 and someone has stolen your classmate's DiscMan. You witnessed the theft and you know who took it. The class field trip has been cancelled until someone tells what has happened. The person who stole the DiscMan knows that you know and warns, "You better not talk!" The scoring rubric on the next page gives you some ideas on how to answer the questions.

1. What are some possible ways to deal with this situation? Think of as many as you can.	What are the consequences (results of an action taken) that might happen for each of the ways?
a) If I told that I had seen the theft and told who took it	then the class would be able to go on the field trip but the theif might do something bad to me.
b) If I did not say anything	then the class would not go on the trip and the Discman would never be recovered
c) If I Persuaded the person who stole it do give it back then	then the class would get to go on the field trip. My classmate would get his Discman back and the theif wouldn't get in so much trouble
d) If I told who did it and told that they were going to hurt me if I told on them	then the class would get to go on the field trip and the theif would be in trouble.
e) If I told my classmate who stole it	then they might get really mad at the person who did it to the class would get to go on the field trip.

2. Look at what you wrote in question 1. What will you choose to do? Explain why you chose this action over the others.

I would chose to persuade the person who did it to admit that they did it because then it works out better for everyone in the end.

Ethics is concerned with human behavior and making decisions that are of greatest benefit to society. There are many situations in society that require ethical decisions. Here are some topics that require ethical decisions:

- Abortion
- Animal Rights
- Capitol Punishment
- Consequences of crimes
- Downloading music off the Internet
- Euthanasia
- Genetic modification
- Legal drinking age
- Mandatory curfew
- Marijuana for medicinal use

Student Scoring Rubric

Level 5 (high)	Level 4	Level 3	Level 2	Level 1 (low)
At least 3 major defenses with supporting details for each and with positive impact on society.	At least 2 major defenses with supporting details for each and with positive impact on society.	At least 2 major defenses with supporting details for one and slight benefit to society.	At least 2 defenses with no supporting details and fairly predictable and self-centered.	One supporting idea that is self-centered.

1. Choose from the list above or choose another ethical topic that you feel strongly about. State your position on the topic. Be sure to support, justify and defend your position. Outline, chart or point form is acceptable.

Marijuana, if determined to be really helpful, should definitely be allowed for medical use. In the big picture it is not really that dangerous, so there shouldn't be a big worry over it. There are, I'm sure, many legal prescription drugs that someone could overdose on and die. And sure, marijuana could have side effects that are detrimental, but so do some drugs currently legally used. If the benefits outweigh the harmful side effects, then why not use it? The reason people would be afraid if it were legalized is that it would be abused if it were legalized as medicine. But as long as it is stored in small quantities in a locked room, like narcotics already are at hospitals, there shouldn't be need to worry. And the people that would try and abuse it? Even if it weren't legalized, they would probably find some anyway, so they would still pose the same threat to society.

2. There are other people who feel differently than you do about the topic. Think of their position. Why do you think they might feel they do? List some of their reasons. What might be some of their strongest opposition to your view? Explain fully.

Student Scoring Rubric

Level 5 (high)	Level 4	Level 3	Level 2	Level 1 (low)
Clearly states with supports the view-points of others. Considers their strongest opposition.	States with some support the viewpoints of others and considers their strongest opposition.	States others viewpoints with either some support or with strongest opposition.	States others' viewpoint.	Considers one's own view.

People who feel that marijuana should not be legalized argue that patients could fake illness to obtain marijuana legally, that doctors themselves might abuse it, or that there is no where safe to store it without someone being able to break in and steal it. I think they aren't thinking clearly because of the thoughts drilled into our minds that marijuana is pure evil and to stay away from it. We are only presented with one side of the story - the negative impacts of it. We are never told (in school, health class for example) the whole story, that it could have some benefit, and allowed to make our own decisions about it.

3. Sometimes compromises have to be made by people or groups of people when making decisions regarding ethical issues. What comprises(s) would you be willing to make on the topic that you chose? Explain fully.

Student Scoring Rubric

Level 5 (high)	Level 4	Level 3	Level 2	Level 1 (low)
Considers with sensitivity the view-points of others in decision making and still has positive impact on society.	Considers viewpoints of others in decision making and still has positive impact on society.	Slightly considers viewpoint of others and decision has slight impact on society.	Slightly considers viewpoints of others and decision is self-centered.	Unwilling to comprise and decision is self-centered.

If another drug was found to be suitable for helping patients just as much as marijuana, then I would agree with just using that drug. If it's already legal, it'd be a lot less of a headache than trying to legalize something many people are strongly against. But if marijuana is the only treatment known, it must be allowed. To ensure no abuse would happen, when prescribed, the patient's condition should be confirmed by maybe a dozen other doctors. To ensure nobody would steal it in impressive amounts, it should be kept in small amounts, and locked

Ethics is concerned with human behavior and making decisions that are of greatest benefit to society. There are many situations in society that require ethical decisions. Here are some topics that require ethical decisions:

- Abortion
- Animal Rights
- Capitol Punishment
- Consequences of crimes
- Downloading music off the Internet
- Euthanasia
- Genetic modification
- Legal drinking age
- Mandatory curfew
- Marijuana for medicinal use

1. Choose from the list above or choose another ethical topic that you feel strongly about. State your position on the topic. Be sure to support, justify and defend your position. Outline, chart or point form is acceptable.

I believe that the death penalty should be assessed to any person who indulges in any planned murder or rape. I do not think that the people's tax money should be sent to jails to feed these criminals because they do not deserve it. They took the life of someone else intentionally so I believe they should pay the consequences.

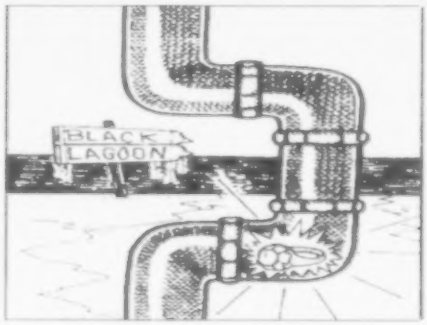
2. There are other people who feel differently than you do about the topic. Think of their position. Why do you think they might feel they do? List some of their reasons. What might be some of their strongest opposition to your view? Explain fully.

I think that the strongest opposition would be that every citizen should have equal rights and that nobody deserves to die

3. Sometimes compromises have to be made by people or groups of people when making decisions regarding ethical issues. What comprises(s) would you be willing to make on the topic that you chose? Explain fully.

The Canadian govt will keep its jail system the same. The convicted will get maximum of life in prison. I think it is a waste of time

A priceless (very expensive) diamond ring has been lost down this drain.



You are asked to recover (get back) the diamond ring. You need to know the following:

a. The drainpipe leads to a black lagoon. The lagoon is a body of water used to treat sewage.
b. Nothing has ever been recovered from the lagoon.
c. The pipe has a diameter (distance across the middle) of 10 cm.
d. The pipe is made of cast iron (heavy iron).
e. The ring is made of gold.
f. The ring is in the elbow just before it drains into the black lagoon.

1. List or draw all the ideas that you can think of to get the ring. Try to think of some really clever ways ("WOWS").

wow① Make sewer back ups with high pressure and the ring will pop out.
② Take a boat to the pipe and undo the pipe and take the ring out.
wow③ Take hot air balloon. Put styrofome on bottom stand by pipe in the water. Disconect pipe and take ring
④ Send sewer snake down the pipe.
wow⑤ Send trained rat down the sewer pipe to get the ring.

2. You and your partner must decide on the best way to get the diamond out. Pick the way you think is best and tell why.

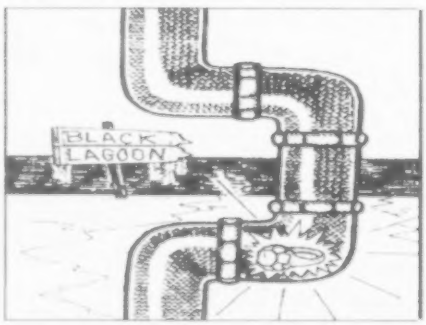
I think the best way is the trained rat because it is inexpensive and it won't damage the pipe.

Explain why you think the other ways will not work as well.

They are expensive and will damage the pipe and will put us at risk.

Grade 5 Exemplar- "Down the Drain" Level 3

A priceless (very expensive) diamond ring has been lost down this drain.



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c. The pipe has a diameter (distance across the middle) of 10 cm.
d. The pipe is made of cast iron (heavy iron).
e. The ring is made of gold.
f. The ring is in the elbow just before it drains into the black lagoon.

1. List or draw all the ideas that you can think of to get the ring. Try to think of some really clever ways ("WOWS").

I think that someone should be at the end of the drain and when it flushes then the person can grab the ring. or take a wench and put it around the pipe and open the pipe up. Then grab the ring and put the pipe back together. get a string and a hook and tie them together. Then put it down the drain and hook on to the ring and pull it up. slowlys put a pail under the pipe and then take the ring.

2. You and your partner must decide on the best way to get the diamond out. Pick the way you think is best and tell why.

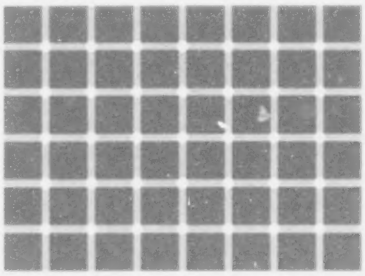
We like the idea about puting a pail under the pipe and then take the pail and look for the ring.

Explain why you think the other ways will not work as well.

because
if you grab the ring out of the black lagoon then your hands get smelly if you take the pipe apart then it may get reckt and not bedble to be to replace put back together and then you have

Grade 8 Exemplar- 'Making Connections' Level 5

1. Look at this picture for a few seconds. Describe what you see.



I see a plaid like cloth I see roads, I see pipe lines, I also see a game of match (like where you flip two cards over and match them all up, im not sure of the name

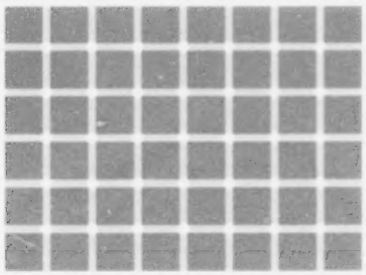
Level 5: Well-explained connection similar in at least 3 concrete ways or 1 abstract way.
Level 3: Adequately explained connection similar in at least one way.
Level 1: Connection is illogical or not given

2. Think about what you saw and wrote. Now use your imagination to make connections, associations or relationships with the picture and life. Where does this take your thinking? Describe these connections, etc. Explain fully by providing details.

A connection would be when I met my best friend in kindergarden I saw the outside of her and thought she was going to be mean and bossy but then when I saw the real her and she was kind and gentle.

Grade 11 Exemplar- 'Making Connections' Level 5

1. Look at this picture for a few seconds. Describe what you see.



I see a trick you might find in a book that trys to trick your eyes. I see six dots in a space when I keep my eyes still, and black & white dots when I move my eyes

2. Think about what you saw and wrote. Now use your imagination to make connections, associations or relationships with the picture and life. Where does this take your thinking? Describe these connections, etc. Explain fully by providing details.

Sometimes when you're really ~~too~~ focused on one thing in your life, like school, a girl/boyfriend, a hat, you don't really see the whole picture, just as when you focus on one part of the picture, you don't see the rest of the dots.

~~Life can~~ Your mind can play tricks on you in life. Maybe you have an addiction, but you can't see it, or you seem to ignore the fact that your ~~spouse~~ partner is abusive & maybe when you look in the mirror, all you see is an ugly person, when you're really not. This picture plays tricks on your mind, just as life seems to at times

Grade 5 Exemplar- "Garden" #5- Level 5

5. Some companies that produce vegetables for sale are switching to grow them <u>without</u> any bug spray or weed spray. They are called "organic growers." What result (effect) would organic growing (no sprays or chemicals) have on the following people? Explain your ideas.

Workers in the gardens?	Owners of the company?	People who buy the veggies?
They might get eating by mosheloes or other bugs.	They wont make as much mony.	The veg wont be as good
I I will be harden.	They will have angry mobs.	They will stasy better.
wont get pady as much many as they would if they did it the other way.	They wanted be cheap the cause a Socid man.	They will have bugs
They wont be posiond.	They wont be blamd for food poisoning.	They will be have eating
		They wont be posiond

A grassy field property near the school has been an empty lot for many years. Land developers have just bought the field. They think this property would be a good location for a gas station.
Some people in the neighbourhood do not want a gas station there. Others think it will be a good business.

What **results (effects)** would the new gas station have on the people in the chart below? Note: the last column asks you to think of someone else who would be affected. Do not put a person's name in the blank, put the **person's job or position**. You can use point form.

Scoring rubric for question 1

	Level 5 (High)	Level 4	Level 3	Level 2	Level 1 (Low)
1.	3-4 reasons for each group including a couple 'WOWS' (insightful).	At least 3 reasons for each group. Try to get 1 'WOW'.	At least 2 reasons for a couple groups OR 1 'WOW'.	At least 1 reason for each group.	1-2 simple reasons in total.

Owner of the gas station	Parents of school kids	Someone else Teachers
- People shouting at him - Getting money for business - Getting respect for owning something - Rumors spreading around from the people who don't want the gas station there - getting greedy for money	- Get gas after dropping kids off - won't have to drive far to get gas - Can get a snack for breakfast if they didn't have any	- Kids could buy stuff during recess - Could get distracted in class by the loud cars - Kids could ask people to go over with them during class

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Owner of the gas station	Parents of school kids	Someone else Teachers
- People shouting at them - Getting money for business - Getting respect for [illegible] - Burns spreading around [illegible] people who don't want the gas station there - getting greedy for more ex	- Get gas after dropping kids off - Won't have to drive far to get gas - Can get a snack for breakfast in the store [illegible] have any	- Kids could buy stuff during recess - Could get distracted by the loud cars - Kids could use [illegible] with the [illegible] class

Suppose that first year tuition for students attending technical school, college, or university will be available for Saskatchewan students in September of next year. Suppose that the government has allocated a fixed amount of money for this project. Please answer the following questions based on the project. You may want to read through all questions first.

Do you agree with this idea? Think as many reasons as you can to support your decision.

I do not agree with this because I feel it will get abused by society. People may use this so they can get away from home, and party in the big city. Another reason I don't agree with this idea is because of course, we the people of Saskatchewan would be paying for it through taxes instead to keep taxes low you shouldn't do this

Another reason I don't agree with this is if there is to many students who apply, who gets it. Instead everyone should pay themselves.

It may also cause trouble because then a lot more students will want to attend secondary education, but won't make it here in Saskatchewan, so would have to move to another province.

Suppose that first year tuition for students attending technical school, college, or university will be available for Saskatchewan students in September of next year. Suppose that the government has allocated a fixed amount of money for this project. Please answer the following questions based on the project. You may want to read through all questions first.

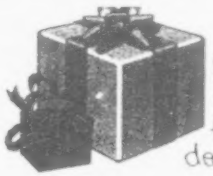
Do you agree with this idea? Think as many reasons as you can to support your decision.

If the first year tuition of school was free, students would go to school for one year without a goal and a good reason. It would cause many problems.

Many kids would just go to party for one year and not care about school. This would upset the people who take university and their future seriously.

This would also make it more difficult for students to get into University. First year courses would be full very fast, probably leaving out people who deserve to be there.

You are in charge of gift-wrapping purchases in a large department store. Your task is to recommend to the purchasing department the sizes of boxes that should be ordered, the number of rolls of paper needed, and the yearly cost of these supplies. What do you need to know before you can make any recommendations? List relevant questions that you need answered.



1. Approximately how many gifts will be wrapped this year? Look back into the past few years to figure out if it was steady, there was a decrease, or an increase.

2. In the past, how many small gifts were wrapped? How many big? Medium?

3. How much wrapping paper have you used in the past? Was there a shortage? Or how much did you have left over?

4. What has the cost been? [redacted] (In the past)

5. Is there any way you could get supplies for a lower price than with your current supplier? Is there anything you could decrease in quantity, judging from the past few years?

6. Would it help costs if you put on a limit on the number of wrappings per customer?

Package TWO contains four art works painted by 4 different artists. One of them is by Tom Thomson. Use your knowledge of Thompson's work from question 1 to decide which one you think was painted by him. Explain why you chose the one you did and why you did not choose the other three. Complete all the boxes below. Scoring will be based on the supporting evidence that you provide.

From the North Shore I didn't choose this because:
- this looks like three different paintings combined
- there is dots used
- there is a lot of shading, light is displayed brightly
- paint is thin, has a cleaner look to it
- it is an almost cartoon painting

Blue River I didn't choose this because:
- the painting technique was done in dots
- the color scheme is very light and bright.
- curvy paint strokes were used
- color palette was very different from the rest
- blury picture
- trees (foliage) isn't main focus

Evening Sky I think Tom Thompson painted this because:
- it is an outside scenery
- it involves a tree
- the painting has vivid colors, but still gloomy
- the paint is very thick
- everything is very clear cut.

Reforestation I didn't choose this because:
- the painting technique is more curvey
- the paint looks not flat + thin
- there isn't a basic foreground object
- the painting was more blended together
- trees blended in with background.

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